REHABILITATION RECORD

JULY AND AUGUST 1973

Automation and Rehabilitation

Commissioner's Memo . . .

This issue of the *Rehabilitation Record* features articles which describe some of the rewarding experiences of handicapped persons working in fields impacted by automation. Automation, far from threatening employment prospects for the disabled, has opened up a new frontier of job opportunities where the disabled and able-bodied are on more equal footing. Many of these jobs can be held by homebound individuals who, in the past, have been cut off from conventional job markets because of architectural barriers and inability to use public transportation.

That so many jobs in the fast-expanding information industry fall into categories which do not require great physical strength, mobility, or manual dexterity challenges the State-Federal Vocational Rehabilitation Program to exploit them on behalf of its more severely handicapped clients before they are lost to the regular workforce. The probable cost of letting this opportunity escape can be best realized by reflecting on the fact that the information industry is now estimated as responsible for one-third of the GNP and growing twice as fast as the rest of the economy.

A Special Task Force to the Secretary of Health, Education, and Welfare recently issued a report, *Work in America,* recommending that workers be given a participatory role in the redesign of work. The Special Task Force argued that the redesign of jobs was critical to the task of decreasing work-related mental and physical health costs, increasing productivity, improving the quality of life for Americans at all occupational levels, and reducing political alienation in America.

To the extent that management, the unions, workers, and government adopt policies which encourage the redesign of work, employment of severely handicapped persons outside of sheltered workshops in the regular workplace becomes more feasible. The key to success, of course, will be how well jobs and people are matched. Any trends toward a shortened workweek, modification of job requirements, adjustments in rates of production, and flexibility in the workplace will be to the advantage of severely handicapped persons who need these adaptations not just for increased self-satisfaction but in order to function on the job successfully.

Time, technological advances, and changes in social mores appear to be favoring the State-Federal Vocational Rehabilitation Program as it enters its fifty-second year of service to the disabled of America. Time has brought sweeping changes in the technology of work which, in turn, has led to the inclination and real possibility of designing work environments to accommodate the worker's individuality—including any handicapping conditions.

Acting Commissioner

The problem is not how to increase production but how to distribute abundance

AUTOMATION AND CYBERNATION

Their Implications For Man, Work, And Society

Frank Pepper and Gretchen Hoskins

WHAT KIND OF A SOCIETY are we preparing people to live and work in? Specifically, what kind of vocational future can we predict and give preparation for? Is there truly a revolution occurring in automation and cybernation which demands dramatically new ways of ordering our lives and preparing for the future? Will our present attitudes and values regarding the role of work in society at large and in our individual lives be able to survive economic change? Will we soon have to pay people not to work? If so, what implications will this have for individual and societal health? If these questions can be answered, how can we implement these answers in a constructive and creative way?

These are some questions we started with. We thought we knew some of the answers already and were surprised to discover how much disagreement and controversy surrounded the whole area of our inquiry. We were not able to amass a reliable body of information on which to base concrete conclusions and recommendations; but we did come up with a very strong feeling that changes have already taken place and are yet to come which will demand a vastly different organization of our economy and society and which will necessitate a revolutionary change in our values relating to work and, thus, in our attitudes and approaches to vocational guidance.

Automation and cybernation are revolutionary in nature. They do not simply stand as another development of the industrial age to be adjusted to. We are essentially living in a post industrial age where old answers and adaptations are largely outmoded. Statistics already pretty well invalidate the myths held by some regarding automation that: 1) automation will automatically upgrade the skills of workers, 2) automation will create more jobs than it destroys, and 3) automation advances slowly and, therefore, allows enough time for adjustments to be made in the economy without creating major dislocations.

Our society traditionally distributes rewards in accordance with individual initiative, ability, and willingness to contribute to the economic process. Americans place a value on full employment. We feel that all adults should work because work develops one's moral fiber and character. Conversely, indolence and leisure destroy ones moral fiber and character. If a person receives an income without just claim upon it through his labor, we feel he will be demoralized by the process. There are certain exceptions, such as the idle rich, the elderly, and some severely disabled persons. Therefore, our public policy up to this point has been to create full employment (or nearly so) through the creation of new jobs and new economic opportunities.

It appears, however, that the fundamental premise of our economic system (scarcity) and its supporting ethic is no longer valid. The notion that a job is required to

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"Wilma, How many times must I tell you about overproduction?"

qualify and certify a person for an income becomes obsolete in the age of cybernation. Machines can handle the bulk of the productive sector of our economy and a good part of the service sector more efficiently and more cheaply than men. In a cybernated system, potentially unlimited output can be achieved by systems of machines which will require little cooperation from humans.

The main roadblock to reaping the benefits of cybernation (abundance for all) is the outmoded industrial system and its mode of distributing reward. The present system is hampered by the fact that distribution of power to purchase goods (income through jobs) doesn't keep up with increases in production. Instead of becoming more broadly distributed, the number of jobs and therefore the distribution of income is more limited. *The problem is not how to increase production but how to distribute abundance.* A main feature of the cybernation revolution is that we have poverty in the midst of abundance.

Cybernation creates special problems for minorities in our society, especially racial minorities which have traditionally been outside the mainstream of our economy. The civil rights movement has based its demands on the present economic system just at a time when that system is becoming outmoded. This movement was aimed at rearranging the existing society in its demands for equal rights. The rub is that such gains must come at the expense of others who are marginally connected with the economy. When equal rights are granted in such a system, it means that those who used to have exclusive rights now have to share.

The idea of absorbing minorities into the mainstream through mobilizing political strength is not well suited to the cybernated age. For example, this movement cannot really expect too much help from the unions since they too are suffering heavy casualties at the hands of technological change. The most optimistic outlook for instituting equal rights in this new age is through a combination of approaches, including expanding the service sector of our economy, making the government the employer of last resort, and guaranteeing a decent standard of living to all citizens. These changes, of course, imply sweeping changes in our definition of work and the very concept of job holding.

Work traditionally has carried the core of meaning in life for most Americans. If we take that core away by eliminating the possibility of work for certain categories of citizens, we must replace it with something just as meaningful. Our chances of so doing depend pretty much on one's view of the best nature of man. If it is the negative view that man can be motivated to productive or creative activity only through a series of sanctions (positive or negative), the outlook is not too good. If, however, we believe that man will engage in creative and constructive activity for its own sake once his basic survival needs are provided for, we can redefine our concept of work, and pay man to do things which are not at present classified as "jobs" in our society. Examples of such activity are limitless: care for aged and lonely people or simply be a companion, paint pictures, tend the earth in a custodial way rather than in an exploitive way. The most hopeful prospect for new jobs is in the service sector where an abundance of paraprofessional jobs can be created, incorporating in themselves the possibility of training and upgrading of skills.

If what is said above is really true, what are the implications for people in counseling positions? The answers are not clear. Perhaps many more people need to be made aware of the ideas presented here and to look forward to these changes rather than to fear them. We cannot ignore the immediate bread-and-butter survival issues facing many of our counselors. We eannot simply say, "Don't worry, pretty soon most people won't be working and everyone will be paid by the government." This transitional period will not be easy. The best preparation that can be given for the world of work is a flexible one. We clearly must give everyone

the equivalent of a high school education (since that's what most machines have today) and import the idea that education is not something one ever finishes.

Retraining and retraining again will be the pattern for anyone who wishes to be employed. The government should continue to finance training programs, but we should not believe that such programs will solve employment problems. The negative attitudes associated with our welfare system have no place in this new age, and they can be changed as education begins to change peoples' ideas about work.

The best we can do as vocational rehabilitation counselors in the here and now would seem to be to inform ourselves about the state of the economy, impart knowledge about how to get a job and keep it (this is a kind of "savvy" that many unemployed and underemployed do not have), and steer counselors away from essentially dead end type employment which is most rapidly being taken over by machines.

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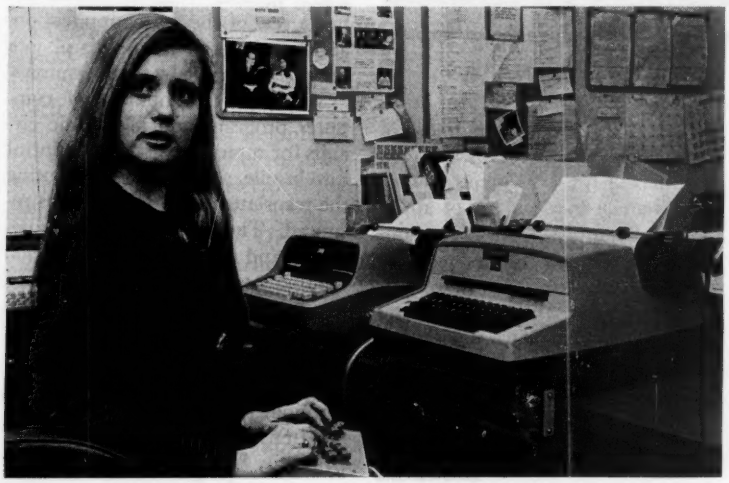
Electronic Typing Aid For Disabled

On the count of three, the reader will disengage his eyes from the fetching young lady in the accompanying photo and concentrate on the real purpose of the art, which is the small box (called a cybertype) on which Laurinda Steele is typing. One, two, three . . .

Cybertype is an electronic gadget developed by Cybernetics Research Institute under an SRS grant. Although still under study, it has good possibilities for use by many disabled people. By depressing two of the 14 keys ranged on the box—called an interface—Laurinda Steele, who is blind, simultaneously activates a regular electric typewriter (at left) and an IBM electric braille typewriter (at right). The tandem system allows her to present a typed letter to her boss while retaining a brailled copy for her files. According to Miss Steele, the system also allows her to swiftly proofread the inkprint materials.

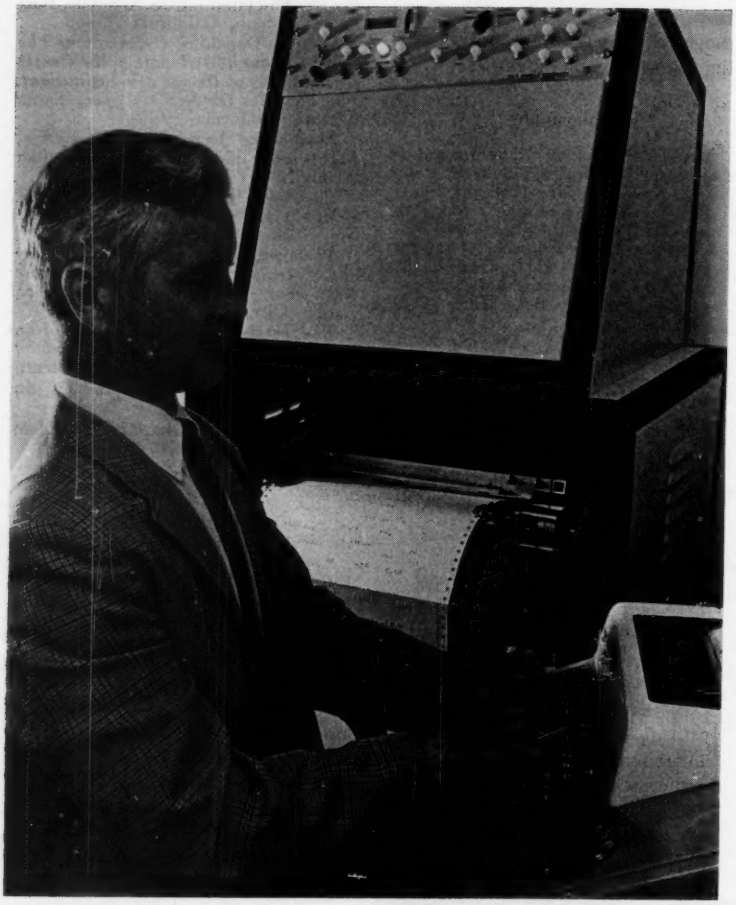


This interface is only one of a variety that is available for different needs. For example, the interface can be converted to a one-button instrument for use by a cerebral palsied person using only a foot to type with. The smaller keyboard would also be of use to persons having only one functional hand. The system, also, is not difficult to master: "I learned the new keyboard in less than an hour," Miss Steele said.

According to Miss Steele, who works for SRS's Office of Public Affairs, there are some difficulties with the system. These are now being studied. Some of the problems arose in typing capital letters and in the different length of the braille-typed line versus the inkprint-typed line.

The Braille

Louis H. Goldish



Dr. John Morrison uses the Braillemboss to receive output from a time-shared computer.

A NOVEL DEVICE is becoming available which may make possible new occupational opportunities for the blind. It is the braille embosser terminal, the braille equivalent of the teletypewriter, computer terminal, and stock ticker which, in most cases, display their information either in print or on TV-like screens.

Mr. Goldish is Director, Sensory Aids Analysis and Development Program, American Foundation for the Blind, Inc.

Today there are hundreds of thousands of printing or TV-screen terminals in the U.S. being used in an extremely wide variety of applications. Some are used to transmit and receive written communications. Documents (such as telegrams, Telex messages, freight waybills) and information between the many branches of some companies are transmitted and received by such terminals. The communication networks of the world news services use them for transmitting stories and articles. These chattering terminals often provide the background during daily news broadcasts.

More recently, such terminals have made possible instantaneous access to computers. Computer programers, engineers, and mathematicians employ them for entering programs and data into the computer and for receiving the computer's output. Now, however, they are used even more widely in everyday clerical activities in which records stored in computers are entered and accessed. The service representatives at a utility company can check a bill, an insurance agent can review the status of a policy, or the Internal Revenue Service can examine a return by retrieving records through these terminals. Airline, auto, hotel, and ticket reservations are made instantly. Merchants verify credit card accounts by phoning verification centers where clerks access computer account records. These are but a few of the many applications and hundreds of thousands of jobs are made possible by such terminals.

With the development of computer programs and electronic circuits for rapidly translating inkprint into braille, some means of printing the translated braille output was required. The conventional braillewriter and other braille production equipment—even when electrified or automated—were not rapid enough or convenient enough. What really was needed was a braille equivalent of the conventional terminal.

After years of research, funded primarily by SRS and, in the later

Embosser Terminal: Creating New Jobs for the Blind

stages, by private foundations, an automatic braille embosser terminal, the Braillemboss, was introduced by the Sensory Aids Evaluation and Development Center, Massachusetts Institute of Technology. This device was designed specifically for use as a computer and communications terminal.

Embosser Applications

Although the Braillemboss concept is relatively new, the value of the braille page embosser in creating or improving employment opportunities for the blind has already been demonstrated. One of the first uses of the Braillemboss for employment activities was by Dr. John Morrison, a blind mathematician at the Department of Transportation Systems Center in Cambridge, Massachusetts. Dr. Morrison frequently uses the computer for performing mathematical analyses. Prior to the Braillemboss, he relied upon sighted persons to read to him the results of his computer programs, a procedure which was highly unsatisfactory compared to the almost instantaneous access which his colleagues had to the computer via teletypewriter terminals.

"For a blind scientist," Dr. Morrison says "the time-sharing capability of computers is absolutely useless without a braille output device to reproduce the teletype output. It was my good fortune that when the time-sharing facility became available to me, almost simultaneously the MIT brailler was put at my disposal for evaluation purposes. From a purely personal point of view, I cannot emphasize enough the almost unanticipated boost in morale the brailler has afforded me. For the first time I can access the computer directly and, for the first time, I can read the results of my labor. . . .

"From the point of view of a productive worker, my contribution to the inhouse effort has kept pace with my colleagues, which would not have been the case had I not had the brailler at my disposal. I consider it an indispensible instrument for my work. . . .

"The potential uses for the brailler are by no means limited to my particular applications. The least that can be said is that whatever is available to a sighted person through a teletypewriter is available to a blind person through the addition of a brailler."

Paul Caputo reads newswire copy from Braillemboss.

Other blind computer programers have since found the Braillemboss equally valuable in their jobs.

Dr. Morrison also uses the Braillemboss to edit papers which he writes. The paper is typed on a teletypewriter terminal which provides the printed copy while a braille copy is produced on the Braillemboss.

Mr. Paul Caputo was able to obtain a job as a TV newscaster at a Springfield, Massachusetts television station with the help of a Braillemboss provided by the Massachusetts Commission for the Blind. The newswire copy normally used by broadcasters is produced on teletypewriters. Mr. Caputo's copy was produced in braille by direct substitution of the Braillemboss for the teletypewriter.

The braille page embosser has increased the employment capabilities of blind taxpayer service representatives (TSR) at the U.S. Internal Revenue Service. Until recently, the blind TSRs served primarily to answer questions on the tax code and regulations; sighted help was needed to retrieve data on taxpayer accounts. However, for TSR Jack McSpadden in the Little Rock, Arkansas District Office, a Braillemboss now has significantly reduced his dependence upon sighted help. Mr. McSpadden accesses the computerized taxpayer records just as his sighted colleagues do, via a keyboard terminal which displays the results on a TV-like screen. However, instead of reading the screen or using the paper copy which comes from a teletypewriter terminal, he obtains his copy from a Brailemboss.

Mr. McSpadden is now performing virtually all the functions that his sighted coworkers perform, and, as a result, the IRS is considering making embossers available to over 40 braille-using blind persons now employed as TSRs. Other government agencies such as the Social Security Administration and the Veterans Administration are also investigating similar applications.

These are but three examples of applications for the braille page embosser; there are many other opportunities which can be opened to the blind. In addition, the embosser can be used to print braille copies of memos, reference material, journals, and other reading matter either directly in grade-1 braille or in contracted grade-2 braille through the use of a computerized braille translation program.

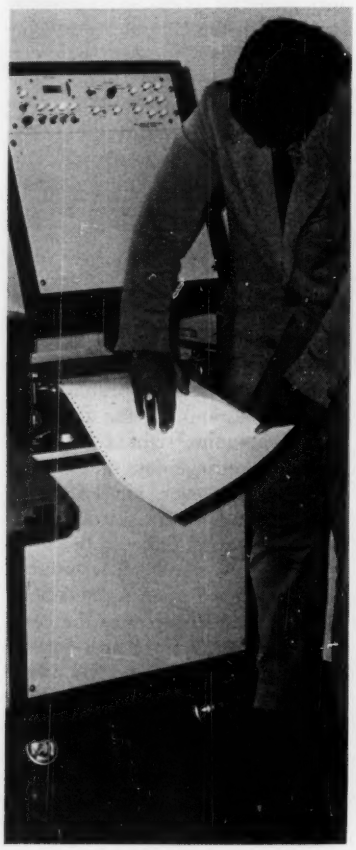
Future Opportunities

The embosser is no longer an experimental device; the equipment is ready for commercial exploitation. In addition to the MIT device, a braille page embosser has been developed by Triformation Systems, Inc. of West Henrietta, New York and by Mr. Norman Loeber at the IBM Corporation in San Jose, California. Needed now are job openings for the blind in which the embosser can be used.

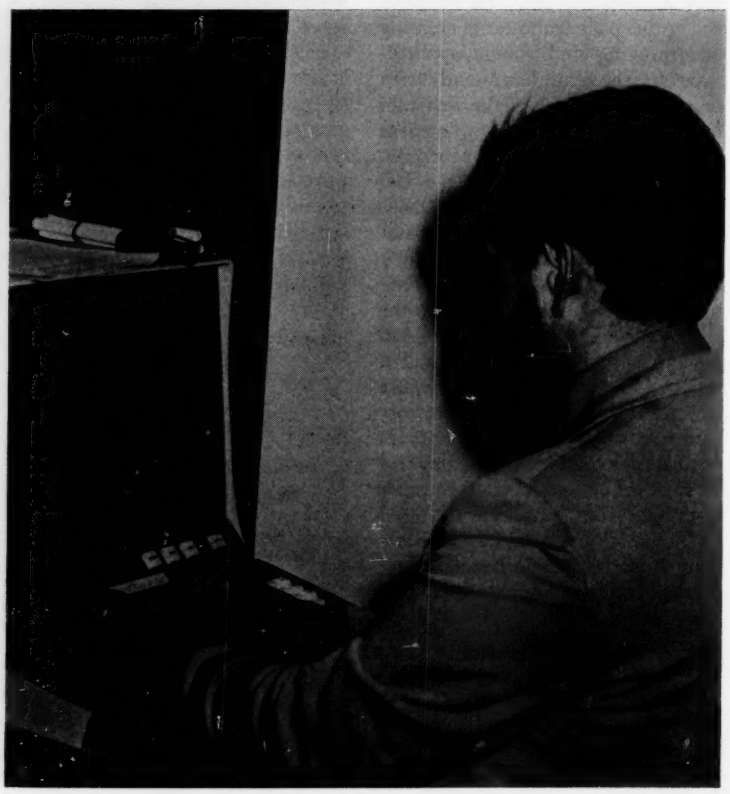
The braille page embosser may make possible the employment of blind people in government service, airlines, hotel reservation systems, credit verification activities, utilities, and in the multitude of other "terminal-based" positions. As the use of computerized record keeping systems continues to grow, the demand for personnel and programers to man these systems should be high. It is now time for rehabilitation and agency personnel to explore the application of the embosser to employment for the blind and to inform potential employers of the tasks which blind workers can perform if this equipment is made available.

Note

The Sensory Aids Analysis and Development Program of the American Foundation for the Blind can provide additional information on the devices and applications mentioned here. The program is also prepared to assist agency and rehabilitation personnel in exploring potential employment opportunities based on this and other sensory aids and in discussing with potential employers the application of these sensory aids. Please address requests to the Sensory Aids Analysis and Development Program, American Foundation for the Blind, Inc., 199 Sudbury Road, Concord, Massachusetts 01742. Tel. 617/369–5500.



Photos below and at left show IRS taxpayer service representative, Jack McSpadden, requesting and receiving taxpayer records in braille form.



Exploiting Information Technology For The Severely Handicapped And Homebound

John H. Noble, Jr., Ph.D.

THE REHABILITATION SERVICES administration (RSA) has set for itself the goal of rehabilitating by 1978, 850,000 disabled and handicapped persons per year. To accomplish this, jobs will have to be found each year for approximately one-half of the 850,000. These jobs must offer meaningful and rewarding employment. No longer will dead end and low-paying jobs be acceptable. Congressional intent is clear in this regard. The substantive committees of the House and the Senate, which reported out bills underlying the Rehabilitation Act of 1972, both expressed dissatisfaction with the tendency of rehabilitation agencies to settle for dead end and low-paying jobs for many of their clients. Although primarily located in sheltered workshops, these jobs are also found outside and represent too often "crumbs from the table" of well-meaning public and private sector employers. The challenge faced by RSA is compounded by the additional Congressional expectation that it emphasize vocational and comprehensive rehabilitation services to the severely handicapped.

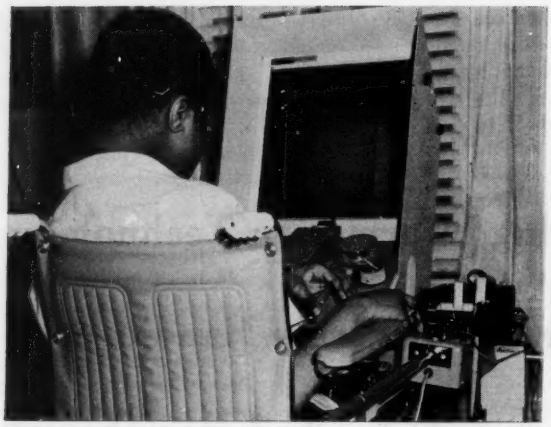
How can the rehabilitation field meet this challenge? Obviously, traditional jobs in the usual places of employment will not suffice. Low technology work in smaller places of employment must yield to jobs now being created by advanced technology in those larger corporations with sufficient capital to invest in its development. The exploding information industry (now estimated as responsible for one-third of the GNP and growing twice as fast as the rest of the economy) comes to mind as the logical place to look for jobs for the disabled and handicapped.[1] Somehow handicapped persons must be equipped with the know-how and skills to compete for information processing jobs in the major insurance companies, public utilities, electronic manufacturers, and national wholesale and retail outlets. It will be just as important, however, to correct management's misinformation about alleged increased insurance and workman's compensation rates occasioned by handicapped persons in the work force. Similarly, it will be necessary to dispel the general impression that expensive modifications of the workplace and equipment are required to accommodate disabled employees, leading to increased production costs to the employer.

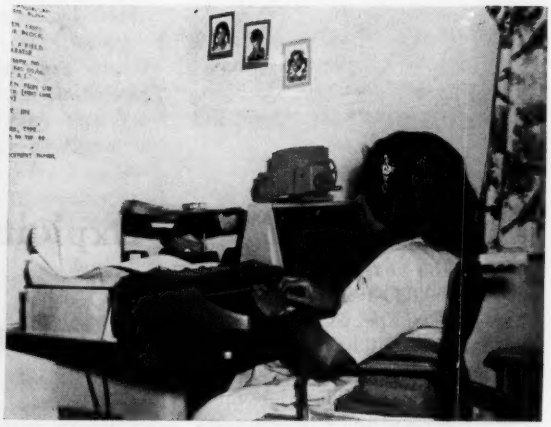
The work of Professor Thomas R. Shworles and his colleagues at George Washington University invites widespread replication because it demonstrates the feasibility and cost-effectiveness of preparing severely handicapped persons for microform and data processing jobs that pay decent wages in the competitive marketplace.[2]

In translating what is known in this area into a plan of action, RSA seeks, first, to gain entry and exploit on behalf of the severely handicapped and homebound job markets impacted by recent technological advances in telecommunications, microform and data processing, and programed instruction and, secondly, to draw the benefits of these technologies into the rehabilitation services delivery system. If implemented, the plan will require expenditures upwards of $4 million in Research and Demonstration funds over 3 years. One can anticipate that successful projects will become self-sustaining and beget similar efforts by State rehabilitation programs under regular authority and funding.

First on the agenda is establishment of data processing service centers manned by severely disabled persons who are capable of fulfilling Federal Government contracts for

Dr. Noble is Director, Research and Evaluation Staff, Office of Planning and Policy Development, RSA. *This paper was presented at a workshop on the homebound person and cybernetics at the 1972 International Conference on Cybernetics and Society, October 12, 1972.*





Above and on page 9 are some examples of use of information tools by homebound persons. Studies into these matters are being conducted by Professor Thomas R. Shworles at the George Washington University Medical Center. Above left, a client edits microfilm,

data processing services placed on the set-aside procurement bid list under the provisions of the Wagner-O'Day Act, as amended in 1971. These data processing service centers would be set up in each of the 10 DHEW regions. They would, in turn, subcontract for some types of services to capable workshops located within the States in each region.

It will probably take 3 years to "tool up" and train severely disabled workers to provide the consistent labor force needed to bid effectively for large government contracts. The initial investment, however, should pay off in millions of dollars of Federal Government contracts and create hundreds of jobs for the severely handicapped under the provisions of the Wagner-O'Day Act. The Act grants a monopoly for goods and services sold to the Federal Government at a fair market price to nonprofit workshops which employ at least 75 percent severely handicapped persons in their production.[8]

The data processing service centers can get started by processing data collected as part of RSA's R–300 basic program accountability system and the Reciprocal Rehabilitation Reporting System covering public and private sector rehabilitation facilities and workshops. The centers would function in themselves and as brokers for workshops in their respective regions in the following manner:

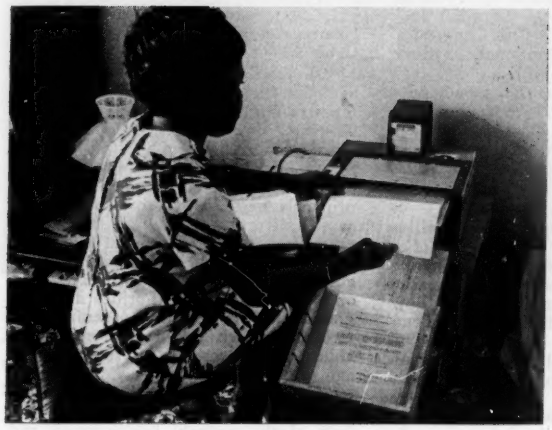
- Collecting, coding, editing, and processing information as defined by contract for analysis by Federal agencies and their designated consultants in preparation for general publication;
- Converting information for processing and storage in a common computer or linked network of compatible machines serving as a central data bank for federal agency and other authorized users;
- Training disabled persons for keypunching, verification, and other forms of converting information into machine readable form;
- Acting as service bureaus to other workshops by providing training in bidding techniques, layout procedures, monitoring of production flows and the quality of work, and in the acquisition of equipment needed to bid effectively on large Federal Government contracts.

Time-sharing computers and remote-access consoles, of course, make it possible for homebound persons to plug in and become part of the data processing services network.

Closely aligned with the data processing service center project is another, dedicated to surveying major corporations in the information industry to learn what jobs might be made available to severely disabled people and what kinds of specialized training they will require to qualify for them.

Many severely disabled persons now employed in sheltered workshops on a terminal basis could work in regular employment settings if they were afforded one or more of the following types of shelter: (1) less than customary working hours, (2) reduced production rates, (3) job modifications, (4) special supervision, or (5) subsidy of less than normal wages for particular jobs.

Persons trained in the data processing service centers could move into regular employment settings in the information industry as special



next, client retypes scientific documents that are in deteriorated condition; Page 9, left, shows rheumatoid arthritic woman feeding a stack of location ledgers into a rotary microfilm camera; finally, at right, client inserts microfilm into thin envelopes for storage.

arrangements are made to identify the jobs and the types of shelter needed to accommodate them. Such a plan would allow controlled turnover of personnel in sheltered workshops performing on Federal Government data processing contracts and thereby enable new persons to take their place in the queue of training and graduated production.

The second part of the RSA plan to exploit advanced information technology calls for an appraisal of the potential of cable and slow scan TV as a means of improving educational and other rehabilitation services. If Parker and Dunn are correct in their prediction, an information utility could be made available by means of cable TV to most U.S. homes by 1985.[4] In their view, "the greatest single potential of an information utility might be the opportunity to reduce the unit cost of education to the point where our society could afford to provide open and equal access to learning opportunities for all members throughout their lives." [5]

In the near term, cable and slow scan TV technologies may offer to the States the only feasible means of complying with recent court decisions ordering tax-supported educational services for all children regardless of the degree of their disability.[6] According to the Council on Exceptional Children, exclusionary practices of public schools deprive nearly one million American school age children of educational opportunity. Presently, home tutorial methods are expensive and, because of that expense, restricted in application to all those in need of them by school districts operating on budgets buffeted by inflation. Slow scan TV devices together with audio link-up via telephone make it possible for the teacher to see, hear, and communicate with a student at home doing his lessons.

Projects making use of cable and slow scan TV to provide educational services will be directed to children now excluded from school because of severe disability in several cities which now have cable TV. Parents and volunteers, working as aides, will be encouraged by means of visual and audio contact to interact and share problem-solving experiences.

Finally, slow scan TV and video cassette technologies will be used to expedite the process of reaching agreement on the disability status of claimants filing for disability benefits under the social security and public assistance programs. Presently, physical and temporal distances between original disability determiners and their consultants and reviewing bodies at the State, regional, and national levels produce great quantities of paperwork and red-tape. In comparison to traditional methods, use of slow scan TV to provide real-time linkage of claimants, disability determiners, and specialized consultants during examination, backed by a permanent video cassette record of the transaction, is expected to: (1) reduce the overall unit cost of examinations; (2) speed conclusion of the determination process; (3) prove more accessible to objective review; and, therefore, (4) curtail disagreements leading to denial of benefits that are subject to reversal upon appeal. The potential savings of this approach are enormous in face of a 15 percent rate of dispute and appeals among more than a million

persons applying each year for social security disability benefits, and a minimum of 15,000 disputed cases among public assistance disability applicants.[7]

As we begin to act on this plan to draw advanced information technologies to the service of the severely handicapped and homebound, other relevant applications will come to mind.

If the Rehabilitation Act of 1972 or some variant of it is passed, special consideration will have to be given to improving the lives of severely handicapped and homebound citizens.[8] RSA must rise to the great challenges this mandate imposes by at least taking advantage of the useful engineering artifacts and ideas which other agencies, such as NASA, have produced as byproducts of their mission,[9] and assume leadership for future developmental efforts.

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(1) Haigh, Robert W. "A Futuristic View of Learning and Adult Education." Keynote address, 4th National Meeting of the Information Industry Association, New York City, April 10, 1972.

(2) Shworles, Thomas R. "Technical Innovations in the Information Industry and New Vocational Experiences for the Severely Handicapped and Home-bound Person: International Possibilities." Paper presented at the 12th Congress of Rehabilitation International, Sydney, Australia, August 28, 1972.

(3) Wagner-O'Day Act, as amended June 23, 1971 (P.L. 92–28).

(4) Parker, Edwin B. and Dunn, Donald A. "Information Technology: Its Social Potential," *Science,* 176: 1392–1399, June 30, 1972.

(5) *Ibid.,* p. 1392.

(6) See, for example, Mills et al. vs. Board of Education of the District of Columbia, et al. (Civil Action No. 1939–71); and Pennsylvania Association for Retarded Children, Nancy Beth Bowman, et al. vs. Commonwealth of Pennsylvania, David H. Kurtzman, et al. (Civil Action No. 71–42). In addition, suits alleging discrimination against the mentally disturbed and mentally retarded in the provision of public education have sought similar injunctive relief in California, Delaware, Massachusetts, Michigan, New York, and North Carolina.

(7) Social Security Disability Insurance statistics for FY 72 on applications, determinations, and four levels of appeal are as follows:

Applications 1,009,092; determinations 1,016,084; requests for reconsideration (State level) 159,514, 15.6 percent; reversals upon reconsideration 58,259, 36.5; requests for hearings (SSA district level) 43,916; reversals after hearings 19,186, 43.7; appeals council proceedings (SSA national level) 10,810; reversals after appeals council 741, 6.8; requests for Federal Court Hearings 1,669; reversals by Federal Court 149, 8.9.

(8) The Rehabilitation Act of 1972, as defined by the verision of H.R. 8395 reported out of conference (H. Rept. No. 92–1581) on October 11, 1972, passed the House by a vote of 327 to 0 and the Senate by a vote of 70 to 0. It was vetoed by the President on October 27, 1972, primarily because of provisions viewed as (1) diverting the rehabilitation program from its basic vocational objectives, (2) proliferating a host of narrow categorical programs which duplicate and/or overlap existing authorities and programs, and (3) creating organizational rigidities which might undermine the ability of the Secretary of HEW to manage the program effectively. To the extent that the plan described herein to exploit the information industry on behalf of the severely handicapped and homebound fosters vocational objectives for this target population, it is unaffected by the conflict between Congress and the Administration on the future role of the rehabilitation program in the United States.

(9) Technology Applications Progress Report. Office of Technology Utilization, NASA. December 1971–May 1972 (GPO, 1972).

What "Skill" Means Today

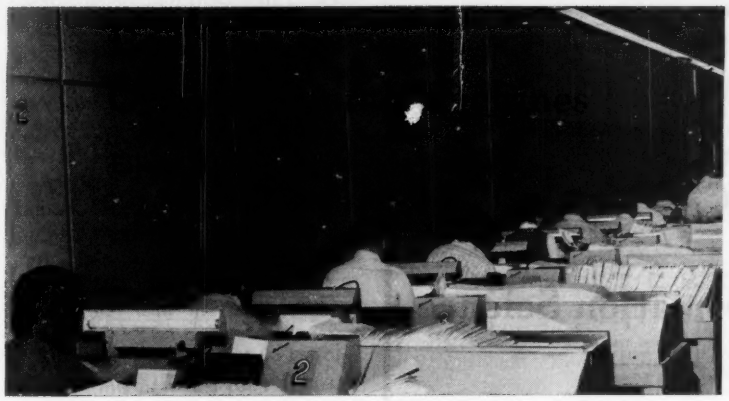
The real issue with regard to automation's effect on employment is not that it eliminates jobs, but that it tends to eliminate the opportunities of the unskilled worker. In an automated society, education is a necessity for everyone. We are swiftly building a knowledge society with a high demand for knowledge workers.

We are going to need a change in the very idea and definition of "skill." Instead of being what one has learned, skill will have to become the capacity to learn. Technology has changed so quickly that man must rapidly learn—and unlearn—technical ways that his father did not know and that may well prove useless to his children. This is as true of the engineering professional as it is of the skilled worker.

Those without the gift of knowledge will be disenfranchised in our society, unable to participate in any meaningful or personally satisfying way in the economy. This is particularly critical because the shift to skilled, knowledge-based work is coming along at the same time that the nation is witnessing a drive for economic affluence by largely uneducated minority groups. The time-honored tools of economic self-sufficiency for the poor—strong hands and a strong back—are useless in tests where a different kind of strength is needed.

The implications for our educational system are imposing. In many respects, educational practices are simply not geared to produce the new kind of worker. Vocational education is in particular need of refurbishment; in some cases, nothing less than a complete overhaul will suffice. The tricky part of this task will not be the production of new curricula—we can do that easily enough—but the introduction of new educational concepts in areas where old practices lie entrenched and in wait. Educators and technical professionals must work together to make inroads on this problem and they should be doing it now—we are already lagging behind our technology.

Charles F. Jones
in *Social Service Outlook*



LIGHTS FLASHING in exciting psychedelic sequence and answers to complicated questions pouring forth spell sophisticated automation on TV tubes, but this is not how it happens with the LSM (Letter Sorting Machine) used in large Government Post Offices throughout the country.

The LSM is a very complex machine of some 60 feet in length. Twelve operators are seated along one side, reading zip codes on letters and pushing buttons to sort them at the rate of 60 per minute. One LSM viewed by this writer directs letters into 277 different locations. Imagine, if you will, the time required and the confusion involved in a hand-operated transaction of this kind where workers would be required to stand for long periods while pacing back and forth and slipping letters into a block of pigeonholes.

In Chicago, as many as six LSMs are in operation at the same time. While the speed is great, the noise factor is unbearable for hearing operators, and it is compounded with the requirements of an 8-hour work schedule. The loud and repetitious sound, together with the required efficiency and accuracy, can be endured only for periods of 40 to 45 minutes. At the end of each 45-minute period, console employees are given 15 minute assignments in other functions, away from the tension-building LSM.

Five years ago, the placement consultants in the Chicago office of vocational rehabilitation started working with the Post Office officials to place deaf persons in these positions since noise would be of no importance to them and would not affect their efficiency. The placement consultants soon found themselves involved in a joint effort with two other government agencies—the Chicago Post Office Region covering several States and the U.S. Civil Service Commission. The deaf clients of DVR had proven that they could function extremely well on the LSMs, but Post Office regulations required that they pass both the Post Office clerk examination and a thorough medical examination, each administered by the Post Office.

Except in too few cases where deaf persons have received a good education, there tends to be a big problem of normal communication and word usage with deaf people. Negotiations were completed and consent of the Civil Service Commission was given to eleminate Part C (Word Meaning and Reading) from the examination for deaf clients.

To avoid the risk of low test scores which would disqualify clients, DVR created a coaching class arranged in cooperation with DePaul University and the Jewish Vocational Service under a federal grant. Classes were held for 2 hours a day, 5 days a week for 14 days; on the 15th day, the competitive Civil Service examination was administered. Approximately 85 percent of those taking the complete training course passed the examination, with scores ranging from 70 to 100. An interpreter for the deaf was hired by DVR to coordinate between Post Office supervisors and deaf clients.

By the time the grant had terminated, DVR placement consultants had become adept at teaching the skills required for deaf persons to pass the modified Civil Service examination. During these early planning, coaching, and preparation stages of the process, a manual was developed and printed which included lesson outlines and sample work sheets, as well as other pertinent information. It served a very important function in training additional clients,, and it is now being revised.

Since early 1969 when the mechanics of the program were completed and put into operation, the Illinois Division of Vocational Rehabilitation has placed approximately 260 deaf clients in career jobs in Post Offices in Chicago and throughout Illinois. It should be noted that not all of the 260 persons operate LSMs; they function well in other assignments under the classification of Post Office Clerk. Supervisors of the deaf in the Chicago Post Office indicate that they have less trouble with the deaf than with any other group; absenteeism is very low, and morale is good. DVR maintains continuous follow-up with Post Office officials to assure continuation of employment of the deaf people.

The base pay for postal clerk is $4.14 per hour with 8 percent additional adjustment for cost of living. Any work after 6 p.m. pays another 10 percent. Opportunities for advancement for deaf workers are on an equal basis with all others, and there is no discrimination because of race or sex. ■

Mrs. McCune is Chief of Public Information, Illinois Division of Vocational Rehabilitation.

An Application Of Information Science And Technology To Provision Of Rehabilitation Services

William A. Spencer, M.D.,

Charles L. Moffet, M.D.,

and Robert L. Baker

PROBABLY THE MOST significant characteristic of the patient care process in rehabilitation is concurrent involvement of many professional people and their use of a goal-oriented plan of rehabilitation care. Professional involvement occurs not only in providing services, but in planning the details of each patient's care plan and updating them as the specific patient's status changes. Because of the psychological, vocational, and medical aspects of the rehabilitation process, the activities and approaches of the various disciplines involved must be consistent with each other and coordinated in order to realize the maximum benefits with and for the patient.

Rehabilitation patients present an additional challenge in that they typically require supportive care, personal assistance and counsel, and anticipatory management in addition to therapeutic and restorative services. Anticipatory management is designed to forestall the development of physical and behavioral complications worsening or causing disability (loss of a healthful condition and impaired performance in daily living). These can negate any gains derived from previous medical treatment or surgery, retard the rehabilitation process or render it less effective.

The care planning process involves input from one or more physicians who assume overall responsibility for the rehabilitation effort and from their surrogates who assume part of the responsibility and provide the primary inputs related to medical management. For example, the nursing staff, especially the rehabilitation nurse clinicians, are responsible for planning and providing the multitude of activities which constitute the supportive measures of care as well as carrying out many of the tasks, such as medication administration, required by purely medical management of the physically handicapped. The physical and occupational therapy staff members plan and execute most of the aspects of therapy dealing with motor function. The nursing staff often becomes involved in performing some of these same activities during the evening and weekends. The social service professionals are concerned with the patient's and family psychological adjustment to a new situation and must be concerned with organizing the staff's actions and attitudes to aid the pa-

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tient's personal adjustment to residual handicap. All of this implies a great deal of staff interaction, communication and coordination of efforts in which one group's decisions affect many other aspects of the overall care plan.

At the Texas Institute for Rehabilitation and Research (TIRR) a unique approach to rehabilitation care planning, utilizing a digital computer, has been in development since 1968 and in full operation since 1970.[1] The computer now occupies the central position in an information network providing the storage medium for consolidating the variety of inputs to the care plan from each member of the care team, organizing this information for use in providing care, and disseminating all or portions of the information to the responsible groups.

A Computer-Aided Care Planning System

The daily care plan and schedule for an inpatient at TIRR is a computer-generated report that lists, at the top, the major goals that the staff intend to achieve for the patient and, toward the bottom, lists chronologically the specific activities which were specified to achieve these goals. (Figure 1 shows portions of a quadriplegic patient's care plan for one day.) The event list is arranged in chronologic order for a 24-hour period and indicates which department is responsible for the performance of each task.

For each event, the report shows the approximate time of day when the event is to be performed, the location in the hospital (the responsible department), the activity itself, and comments that clarify or explain the nature of the activity. Where applicable, the schedule will also indicate who is to be involved in the event (either by skill level, or, in the case of physical and occupational therapy, the name of the therapist), and the position of the patient (as, in a wheelchair inclined at 50 degrees). As an example, at 1:30 p.m., the schedule might show that a particular patient was to be in the physical therapy department for an hour of therapy under the direction of Miss Williams, and that the patient should be taken to the therapy department in a wheelchair. Then the daily schedule plan provides a working document for individualized care for each patient.

The same information is also readily regrouped into alternate form by merging the schedules of all patients and listing them, for example, by nursing station (Figure 2). The result is a report showing, chronologically, all of the events on

Figure 1

PRIVILEGED INFORMATION:

24.APPROACH	A.APPROACH RE.POSITIONING---WHEN HE COMPLAINS OF PAIN IN LIFTING,TURN A1.ING,TRANSFERRING ETC. REASSESS THE TECHNIQUE YOU ARE USING.REASSURE A2.HIM + CONTINUE C THE POSITIONING, TRANSFER, ETC. B.SPEND A FEW MIN OF UNINTERRUPTED TIME WITH MANUEL SEVERAL TIMES EACH B1.SHIFT TALKING C HIM. AT BEDTIME AND DURING THE NIGHT CHECK FREQUENT B2.LY C HIM IF HE IS AWAKE + VERBALLY LET HIM KNOW YOU ARE HERE AND HE B3.IS NOT ALONE. C.NURSING STAFF MUST PAY GOOD ATTENTION TO INTAKE REQUIREMENTS- DO NOT C1.DEPEND ON PT. TO KEEP UP WITH INTAKE
27.CENSUS INFO	A.DISABILITY. C4-5 QUADRIPLEGIA AGE OF PATIENT. 32YRS 11MOS CURRENT PROGRAM. COMP.REHAB B.ADM. REASON. COMP.REHAB.

INFORMATION PERTINENT TO PATIENT CARE:

00.CARE CATEGORY	CATEGORY 5 - SUPPORTIVE PROGRAM	SINCE- 11/17/72
02.INDPND LEV	DO FOR, SHAVE, GROOM HAIR, WASH HANDS AND FACE DO FOR, TRANSPORT, BATHE, DRESS. HELP, BRUSH TEETH HELP, TRANSFER, COMMODE. WATCH, EAT	
03.HYGIENE	A.BATH QDN B.HYGIENE BID C.NAIL CARE WEEKLY D.SHAMPOO HAIR WEEKLY	

TIME	LOCATION	DURATN	ACTIVITY	COMMENT	BY WHOM	POSITION - METHOD
12.02AM	NURSING UNIT	08-10	LT.ELBOW CARE			
12.02AM		04-07	TURN S-S			
5.00AM		04-07	TURN BACK			
6.02AM		08-10	LT.ELBOW CARE			
7.30AM		15-26	BREAKFAST			
8.00AM		08-10	RT.ELBOW CARE			
		03-06	SURFAK CAP			
8.20AM		11-18	DRESS			

SOCIAL WORKER: [redacted]
REHAB. NURSING SPECIALIST: [redacted]
PATIENT SCHEDULE
12/1/72

[redacted], [redacted]
PATIENT 2[redacted]7
STATION 3 RIGHT 3RT

Figure 2

DAILY SCHEDULE FOR ALL PATIENTS FOR 04/19/72 STATION 3 RIGHT

TIME	DURATION	PATIENT	PT.NO.	LOCATION	ACTIVITY	COMMENT	BY WHOM	POSITION - METHOD
8.20AM	011-018	[redacted],TOMMY	GE 21721	NURSING UNIT	DRESS			
8.30AM	012-021	3[redacted],LEONARD	EU 15390	NURSING UNIT	HYGIENE		DO FOR	
	045-075	[redacted],HOWARD	KE 19457	NURSING UNIT	***OT ON WARD	8.30-9.30		
	012-021				DRESS		BEARD-PARK W/C	
					HYGIENE		DO FOR	
	009-013	[redacted],DANIEL JR.	21097	NURSING UNIT	BLDW BOTTLES		DO FOR	

Figure 3

DAILY SCHEDULE INFORMATION ON ALL PATIENTS FOR 04/19/72

RESPONSIBLE DEPARTMENT : PHYS. THERAPY (PT)

TIME	NAME	STAT	ROOM#	ACTIVITY	COMMENT	BY WHOM	POSITION - METHOD
	CATEGORY OR LOCATION : PHYS. THERAPY						
2.00PM	B[redacted],JOHN H	3	3RT		2.00-3.30	MCNABB	EST
	R[redacted],FREDERI	3	3RT		2.00-3.00	PRICE	W/C
	H[redacted],EL	4	R-133		2.00-3.00	ROGERS	STRETCHER
	M[redacted],NANCY A	4	R-133		2.00-2.30	STEADMAN	
	R[redacted],ARTHUR	5	RM-11		2.00-3.00	PRICE	WALK
	A[redacted],NOLEN	5	RM-13		2.00-3.00	WILLIAMS	
2.30PM	R[redacted],THOMAS L	1	1LT		2.30-3.30	MCNABB	W/C
	L[redacted],APIST	1	1LT		2.30-3.30	STEADMAN	W/C
	P[redacted],JOHN S	2	2RT		2.30-3.00	PRICE	PST
	L[redacted],SAMUEL D.	3	3LT		2.30-3.30	STEADMAN	W/C
	J[redacted],CARTER	4	R-125		2.30-3.30	JARDENE	W/C
	R[redacted],JOHN	4	R-126		2.30-4.00	STEADMAN	W/C
	P[redacted],TRUDY	4	R-127		2.30-3.00	ROGERS	W/C

a nursing station for all patients in this location for 24 hours. Thus, the nursing staff on a particular station can easily see the activities that they must do during a particular time period.

By selecting only the physical therapy activities, it is possible to prepare appointment lists for that department (Figure 3). Similar reports are produced for other Institute departments.

The care planning process involves the entire staff. At admission, the major problem conditions and needs of the patient and his care program are determined or are known. This permits the scheduling office staff to create a primary plan of care by assembling appropriate component basic plans selected from the computer file. The result is a plan specific for the patient's physical impairment, stage of rehabilitation or reason for admission and for additional care problems, such as particular complications that he may have. These basic plans, periodically revised, represent the collective experience of the attending Institute physicians.

When the patient arrives at the nursing station, the basic plan of care (and the activities involved) are ready and may begin immediately. It was shown at TIRR that as many as 3 days delay in getting a care plan initiated could thus be eliminated. The doctor's initial involvement is the specification of diagnosis, complications, and changes, modifications, additions or deletions in the basic care program. Subsequently, during staff conferences and daily rounds, the care plans are discussed and revised.

This basic plan is updated and revised with orders written by the physician, the nurse, and the therapists. It becomes individualized to fit the patient's specific needs, the patient's responses, and the physician's particular style of practice and decision making. Other professionals add their objectives and planned activities to the patient's program. At the Institute, some orders are entered by the department staffs themselves, while orders written by the doctors and the nurse clinicians are entered into the computer by clerical staff supplied by the Computer Applications Department.

In the latter case, the orders, whether new or modifications or deletions of old ones, are written on a special two-part order form in the bedside chart. Every 2 hours, the scheduling clerks pick up any new orders. Back in the scheduling office they enter the additions, changes and deletions into the computer.

At 8:30 p.m., when the last orders have been entered into the computer, a program is run to print out the care plans for the next 24 hours. These forms are delivered to the nursing stations and are distributed to the patients' charts at midnight. Schedules for the nonnursing departments are picked up by the departments in the morning when they start their working day or are delivered in the morning mail. At present 22,000 daily plans and schedules are provided per year for over 600,000 care events.

The care planning system operates on an IBM 360 model 50 computer located at the Baylor College of Medicine and operated by the Institute of Computer Science. The machine is time-shared to provide support for many school research and service programs. Since the potential benefit of a consolidated care plan depends heavily upon its dynamic nature with changes being made readily and quickly, the computerized system encourages staff members to update patient plans.

Twelve video display computer terminals are distributed throughout the Institute to provide the staff direct access to the care plan files. This allows a person to retrieve a portion of a care plan to determine when a time period is open for the scheduling of a new activity. In the same way, they can include comments about special care considerations which then are available to *all* staff members without the usual delay until the next staff conference.

The computer-based care planning system is only *one* of a set of computer applications at TIRR, some of which were initially intended to be research tools. The care planning system is most obviously related to regular patient rehabilitation, having now been used for approximately 2,500 inpatients.

Besides the obvious relationship to individual patient care, derived information has proven useful in administrative decisions. After all, administration decisions should assist the matching of service resources to patient needs, provide for adjustment of service capacity, implement new concepts and techniques of care developed by research utilization. Recorded with each scheduled care event is the estimated time required to complete the task which has been determined by observer studies within the nursing department. Following the printing of the care plans

Figure 4

DURATION NURSING UNIT STATION 3 04/02/73

PATIENTS	SHIFT_1 11 PM-7AM MINUTES	SHIFT_2 7AM-3 PM MINUTES	SHIFT_3 3PM-11 PM MINUTES	PT_TOTAL MINUTES	W/O DUR
[redacted]	28	83	64	178	0
[redacted]	43	117	106	266	2
[redacted]	4	86	63	153	0
[redacted]	29	118	82	233	2
[redacted]	16	61	52	129	1
[redacted]	22	137	98	257	0
[redacted]	23	74	74	171	0
[redacted]	4	52	45	101	2
[redacted]	29	90	76	195	3
[redacted]	40	143	110	293	2
[redacted]	67	197	151	415	0
[redacted]	22	86	78	186	0
[redacted]	14	74	48	136	0
[redacted]	8	97	68	173	1
SHIFT TOTAL	331	1427	1125	2883	13

each day, a summary of the cumulative scheduled nursing time is generated for each of the nursing stations for each patient (Figure 4). This information has been useful in making more rational plans for staffing assignments to meet changing patient care demands when temporary nursing staff shortages occur.

Table 1.—Duration of hospitalization

	Quadriplegics		Paraplegics	
	Mean days	Median days	Mean days	Median days
1967	115	117	109	105
1968	107	110	93	80
1969	107	103	83	69
1970	89	85	80	81
1971	97	93	77	72
1972	99	92	79	73

Care Planning System Effects

In 1971, an evaluation of the care planning system [2] was conducted to determine the system's impact and to find out what changes could be made to make the system more useful. It involved a survey of staff opinion to determine attitudes toward the system and comparative evaluation of service delivery efficiency before and after implementing the pre- and post-computer schedules.

For the first purpose, responses were tabulated by skill and functional level, and the following conclusions were drawn:

- The schedule was deemed effective in increasing care-goal and care-plan awareness and agreement among personnel.
- Verbal communications dropped as the staff began to rely increasingly on the printed plan. While some reduction is desirable, too much can be detrimental. This result was viewed as a caution to overreliance on the new method.

In respect to the second purpose of evaluation, scheduled activities were found to have increased 88 percent and scheduled activities actually performed increased 33 percent, indicating an increase in efficiency of service delivery. The staff tended to fill all of the free time with care events, resulting in overscheduling. In order to make the load tolerable, rest periods had to be scheduled to encumber "free" time.

Though the care planning system is primarily intended for patient care delivery, it has proven to be valuable in the training aspects of rehabilitation also. Patient and family education is, of course, quite important since he and his family must ultimately be prepared to perform many of the activities which the hospital staff manages during hospitalization. The patient care plans have proven useful in acquainting the patient and his family with his ongoing needs, rate of improvement in selfcare, etc. Staff education has resulted from the dissemination of the complete set of care activities to all staff members. They are widely used at nursing shift changes and in orientation of new personnel. This has resulted in a better understanding of the time requirements of each department and provided a means of viewing the activities of each discipline in the perspective of the patient's total rehabilitation. This is what the rehabilitation process is all about.

The overall emphasis of the computing activities at TIRR has now been directed to the surveillance of the care process. By this is meant the tracking of the relationship among patient care needs, planned institutional responses to these needs and actual performance of the planned care events, and the changes in the patient's condition occurring at least partially as a result of the care delivered. This is considered to be the basis for rehabilitation effectiveness evaluation.

The care planning system has been developed in response to the perceived need to more closely link the care planners with the staff providing the actual care. While efficiency has been positively affected, effectiveness of care evaluated by activities of daily living tests has not been degraded.

Other elements of the computer system have imbedded other aspects of care surveillance by including the descriptors of patient status reflecting his care needs (such as diagnostic data, existing complications, and demographic data) and major indicators of his response to care, such as duration of hospitalization, duration of complications, and degree of independence in performing daily living activities.

The increased facility provided by computer technology to study past experience with care programs has assisted in modifying the basic approach to the rehabilitation process. It is this ability to better understand the effect of documented past decisions, combined with the improved means of communicating care decisions to the entire staff, which has made the computer an integral part of the rehabilitation process at TIRR.

It is very difficult to evaluate the independent contribution of any single aspect of rehabilitation to the patients. Since the care plans merely reflect professional decisions, the effect of the computer is secondary to the relevance and quality of human decisions in terms of patient

needs. This, too, is the reason that this kind of computer application is not dehumanizing. It can multiply the effectiveness and availability of good decisions by sharing them with others.

Both the summary results of interviews with staff members and the objective measures of changes in task performance suggest that the computer has been at least partially responsible for improvements in institutional performance observed at TIRR. Table 1 summarizes the duration of hospitalization for spinal cord injured patients at TIRR since 1967. There has been considerable reduction in days of stay which has occurred since implementing the care planning system. This has occurred in spite of an increase in the proportion of patients admitted during the acute phase of their disability.

When a person is hospitalized for comprehensive rehabilitation, cumulative delays due to problems in staff communication and resulting from medical complications which could be prevented by rigorous attention to seemingly mundane details of supportive care rapidly add up to costly and unnecessary prolongation of hospitalization. Not only is this unsatisfactory from the patient's viewpoint, it also reduces the institution's capacity to provide needed services to the maximum number of patients possible. Recent cost/effectiveness studies indicate that computer-based care planning and scheduling is slightly (10 percent) less costly than equally detailed manual methods for such an application. This cost comparison *excludes* the high overhead cost of time of professionals to provide and communicate the information included in care plans. The studies of increased efficiency suggest that a beginning has been made in converting staff administrative time to patient-directed service delivery time.

Other studies of institutional professional and technical efficiency losses from creating billing and cost audit trails and for interdepartmental and other communications, may be as high as 30 or 40 percent of available time.[3, 4, 5] Indirect evidence that greater productivity is being achieved in the usage of professional and technical time and effort is partially reflected in the shorter stays and constant costs per episode of rehabilitation care achieved over the past 5 years.

The machine and personnel costs of 8 percent of total institutional expenses are more than offset in the operational cost savings, and the increased numbers of persons served in a shorter time interval are cost/effective bonuses. The value of timely information, sharing of decisions of experienced professionals' explicit knowledge of each other's expected contribution to the rehabilitation process and more individualization of service delivery are quality variables and effects not yet rigorously determined. Their existence is reflected in the problem solving and more critical and analytic attitude developing among professionals and technicians in the rehabilitation environment and by their increasingly active management in the system's revision, usage, and their dependency upon it.

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Computers Talk To Blind People

The following is reprinted with permission from *The Journal of Rehabilitation,* March-April 1973:

Over 5,000 blind people in the Boston area have a new friend in a talking computer that allows them them to type letter-perfect correspondence, proofread manuscripts, calculate bookkeeping problems, and write computer programs.

The first of these systems, known as the Audio-Response-Time-Shared (ARTS) Service Bureau, is operating at the Protestant Guild for the Blind in Watertown, Massachusetts. It is built around a Data General Corporation Nova 800 minicomputer.

A blind person telephones the Bureau from his office, home or school and transmits information to the computer via the telephone line by using a console resembling a standard typewriter. Each key pressed generates a touch-tone sound that the computer recognizes. The talking computer responds to the typists in words and sentences telling him precisely what he has typed or giving him the results of indicated commands or computations.

The operator can request a voice recording, Braille copy, or inkprint copy of the information he typed. He is also supplied with memory space in the computer where he can store information and recall it at a later date for further changes or additional copies.

During testing on a prototype system, blind persons with no computer background were trained to use the service effectively in only a few hours. ■

The Message Through The Medium

Author and puppet props ready to go "on camera."

Barbara E. Bonfanti

The following is reprinted from *The Challenge,* publication of the Department of Public Welfare, Commonwealth of Pennsylvania.

HOW DO THREE speech pathologists, and two student interns (supplied by California State College on an 8-week rotating basis) reach and teach hundreds of mentally retarded children at Western State School and Hospital?

The answer is closed circuit television.

Through the TV studio set up at Western, the Department of Speech Pathology and Audiology, under the codirection of Richard and Barbara Bonfanti, has recently completed a second series to expand its therapeutic services over the closed circuit. Both series have been compiled and performed by the writer.

Language Stimulation

The first series, "Talking With Barbara," consists of eighteen 30-minute language stimulation programs for the mentally retarded and emotionally disturbed residents. Each program is approached through three main media. The first part is, of course, the televised session. The second is a teacher's manual which contains followup activities and evaluation sheets for each lesson. Each teacher having a class viewing the series is given one of these manuals. The third is a child's notebook which is given to each participating child. It contains a self-study sheet for each lesson.

The first three lessons of the series introduce the concept of speech helpers, familiar sounds and listening skills. Lessons four through 18 introduce vocabulary items, using specific initial phonemes.

Of Western's 750 daily population, approximately 350 children view the series simultaneously. The great advantage of television can easily be seen when it is noted that via individual therapy, perhaps only 20 to 30 children could have received speech and hearing therapy on a regular basis. Within the past three years, the complete taped series has been shown 12 times.

Effectiveness of the series has been surprisingly rewarding thus far. Perhaps it is so successful because of the universal childhood fascination with television.

The author's master's degree thesis supports the judgment that the group therapy performed over closed circuit television would be equally as effective as group therapy performed by an actual clinician using identical therapy material.

Staff Takes A Hand

The second series is entitled "Lend A Hand." It is a series, concerning manual signing (sign language) and finger spelling. Contrary to the "Talking

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Mrs. Bonfanti is a Speech Pathologist, Western State School and Hospital, Pennsylvania. She holds her certificate of clinical competence in speech pathology.

At left, upper, the author leads a class discussion following a TV screening. This helps reinforce what has just been seen. Below, a filming session of a series entitled "Lend A Hand" is underway. The series was directed to staff and concerned sign language and finger spelling.

With Barbara" series, which was directed toward resident population, the "Lend A Hand" series is directed toward staff members.

Already the entire Occupational Therapy Department, the Therapeutic Recreation Department, and several nurses' training groups have completed the course. Plans to include all major departments in the hospital have been developed.

This staff program in sign language first began when Speech and Hearing personnel noted that 17 percent of the resident population was deaf or hard-of-hearing. They felt that 90 to 100 children could possibly profit, at least minimally, from learning sign language. Many of these residents acquired the skill through individual or small group therapy rather quickly. The problem came about when the residents returned to their units and could not practice their new communication skills with staff members.

Other Productions

The TV Studio, under the direction of William Mushrush, audiovisual advisor, has produced several other programs and series. Among these, a program called "Helping Hands," is a documentary survey of Western's facilities, "Janie's Farm" is composed of 13 lessons dealing with perceptual motor development, "Medical Self-Help," a series of 11 lessons, is performed by Mrs. Arlene Miller, director of nursing education, and deals with artificial respiration, bleeding and bandaging, fractures and splinting, burns and shocks, and infant and child care. Among other productions are "Parents' Day," "Christmas Program," and "Self-Improvement."

Not all programing was written or devised at Western. Mushrush transmits 50 to 100 16 mm. films a month to the facility.

Mr. Robert Hiltner, the recently appointed Superintendent of Western State School and Hospital, has been excited by the success of the Speech and Hearing Clinic in extending its services through the use of closed circuit television. While use of technology of this kind cannot substitute entirely for clinical encounters, use of electronic technology has meant that Western's limited Speech and Hearing Department has reached many residents who would have otherwise received little or no services. We are very fortunate in having at Western State talented and resourceful people who are able to pioneer in this area. ■

Recovery Of Disabled

After Trust Fund Financing of Rehabilitation

Ralph Treitel

Mr. Treitel has portrayed an accurate and concise status report of the trust fund program. It is the intent of Congress that trust funds be used under the Beneficiary Rehabilitation Program in such a way that the savings from the amount of benefits that would otherwise have to be paid and the increased contributions to the trust funds paid on the earnings of the beneficiaries who return to work will exceed or at least equal the money paid from the trust funds for rehabilitation costs. This article documents very well the meeting of these objectives set forth by Congress.

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Chief, Disability Insurance Branch
Rehabilitation Services Administration

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Social security trust funds have been used since 1966 to reimburse State vocational rehabilitation agencies for the costs of services to selected disabled beneficiaries.[1] This financing arrangement was intended to facilitate the provision of services to severely disabled workers. In fiscal year 1973, reimbursement is to be about $45 million. The amount available for reimbursement was initially 1 percent of social security benefits paid to disabled beneficiaries in the preceding year; this proportion was increased, under the 1972 amendments to the Social Security Act, to 1.25 percent in 1973 and 1.5 percent in 1974 and thereafter.

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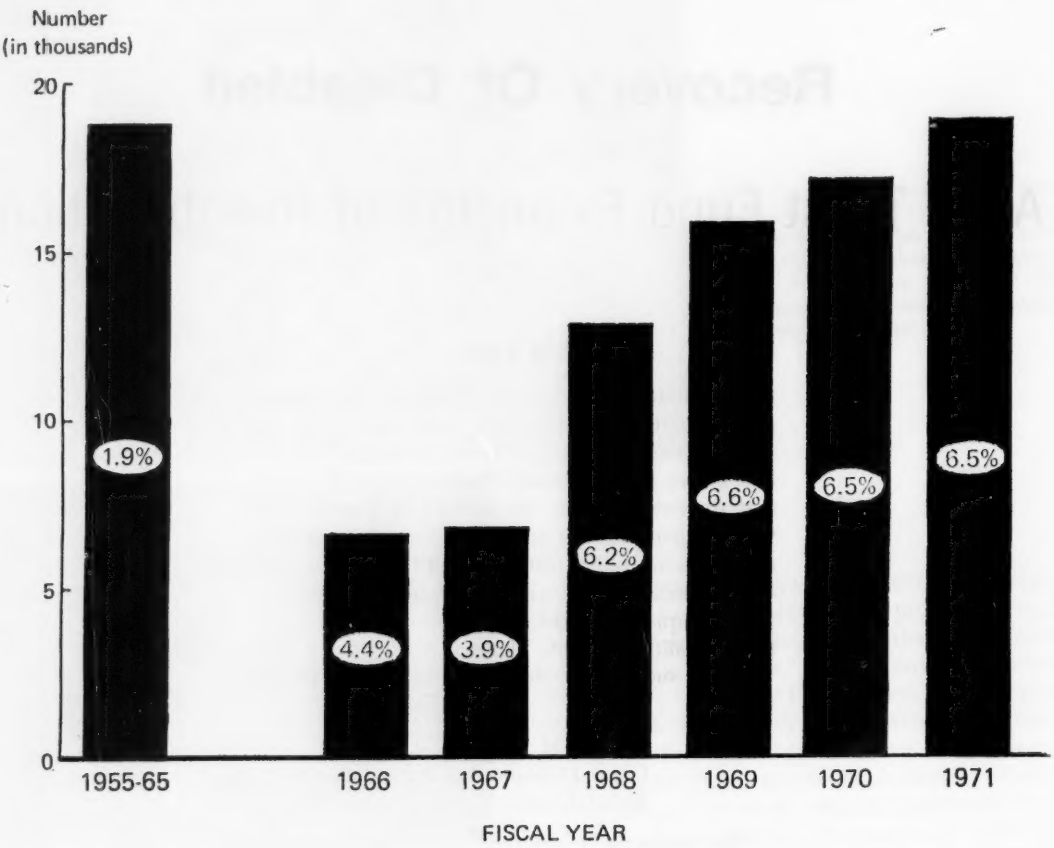
It was intended that the financing arrangement would result in ultimate savings to the trust fund through termination of disability benefit disbursements and renewed earnings tax payments after the disabled workers were restored to capacity to return to work. The average value of future lifetime disability benefits no longer payable to a disabled worker and his dependents after recovery has been estimated at more than $15,000.[2] The amount of such savings is expected to exceed the cost of services to workers who are rehabilitated and return to working capacity, as well as the costs of services to others who are not successful in return to productive work.

In the years following the enactment of the trust fund program, the number of beneficiaries rehabilitated each year by the State agencies has increased

Disability beneficiaries reported as rehabilitated: Number, as percent of all rehabilitated clients of State vocational rehabilitation agencies, fiscal years 1955–71 [1]



[1] Data for beneficiary rehabilitants from *Report to Senate Finance Committee*. 1955-65 data estimated.

from less than 7,000 in 1966 to nearly 20,000 in fiscal year 1971 (chart 1). The use of trust funds in reimbursement of service costs may be expected to have played a large part in this increase. Other legislative changes may also have led to the increase in beneficiary rehabilitants. The definition of disability was broadened in 1965 to include those who have been disabled for some time but might be expected to improve after a year; in addition, the insured-status requirements were liberalized in 1967 for workers disabled before age 31. These provisions made entitlement possible for more younger workers and many with less permanent conditions. Furthermore, the vocational rehabilitation program has grown generally, as indicated by increases in expenditures and in the numbers of disabled persons rehabilitated each year. In the period from 1966 to 1971, however, the number of beneficiaries rehabilitated has grown at a greater rate than that of other clients. The number of social security disability applicants with denied claims who are referred to State vocational rehabilitation agencies and rehabilitated has also increased in this period but at a lower rate than those of other clients.[3]

This report describes the disabled-worker beneficiaries who were rehabilitated in fiscal year 1969. They were identified from reports of rehabilitation closure by the State rehabilitation agencies. The demographic characteristics and benefit status at the end of December 1970 were obtained from social

security benefit records. Information on employment and earnings after rehabilitation was obtained from the social security earnings record of covered, taxable earnings.

The term *rehabilitation* refers, therefore, to the administrative decision by the vocational rehabilitation agencies to conclude case services because the worker has attained a productive status planned under a program of services. The goal of such services may be the return to gainful employment or to homemaking or to sheltered work; under the trust fund program, the anticipated goal is gainful employment. *Recovery* refers to the social security administrative decision to terminate benefits because the worker has regained the ability to obtain employment income. This decision is based on evidence of medical improvement or performance of sustained work.[4]

A broad distinction between these operational definitions is that *rehabilitation* generally refers to return to work and closure may therefore occur a few weeks after reemployment, while recovery refers to capacity to carry on competitive work over an extended period of time. Social security benefits may often be continued without interruption for a year after return to work because of the 9-month trial work provisions and a transitional benefit period allowance after recovery. These provisions are intended to encourage beneficiaries with residual limitations to make attempts to return to work without fear of loss of income maintenance. When substantial medical improvement or medical restoration occurs, *rehabilitation* and *recovery* may occur at closer points in time. The extent to which the provision of rehabilitation services is instrumental in recovery cannot be readily measured; some who received services might have recovered or returned to work without services.

Beneficiary Rehabilitation

In fiscal year 1969, the State vocational rehabilitation agencies reported that of the 707,000 cases closed in that year, about 241,000 disabled persons were rehabilitated (table 1). About 10 percent of all closures and more than 6 percent of the rehabilitants were social security beneficiaries. These rehabilitated beneficiaries—excluding those who were not identified as disabled-worker beneficiaries, such as older persons entitled to retirement benefits or those receiving dependents' benefits—make up the study population.

As the data on rehabilitation agency closures indicate, a smaller proportion of social security beneficiaries than of all other clients were accepted for services and rehabilitated. A somewhat greater proportion of beneficiaries whose services were reimbursed through the trust funds were rehabilitated than the proportion of beneficiaries provided services through regular financing arrangements.

Considerations that may help to explain the lower rehabilitation rate of beneficiaries include (1) the severity, duration, and insured-status requirements for social security eligibility, which may result in a referred beneficiary population that is older and more severely disabled than other clients accepted for services and (2) a formal social security screening procedure [5] in which all disability applicants are considered for referral to the rehabilitation agencies. Other referral sources, such as health care agencies, may be more selective in terms of the disabled person's expressed interest in services, severity of the condition, recency of medical evidence, and particular rehabilitation needs. Data in the following tables on demographic characteristics help to explain why a greater proportion of referred beneficiaries with reimbursed services were rehabilitated.

TABLE 1.—Vocational rehabilitation agency closure status of social security disability beneficiaries in fiscal year 1969 [1]

Vocational rehabilitation agency clients	Number	Percentage distribution			
		Total	Rehabilitated	Not rehabilitated after services or extended evaluation	Not accepted after referral
Total	707,478	100.0	34.1	12.2	53.6
Disability beneficiaries	72,989	100.0	21.2	12.6	66.2
Services with trust funds	33,280	100.0	24.0	14.8	61.2
Services without trust funds	39,709	100.0	18.7	10.8	70.5
Other clients	634,489	100.0	35.6	12.2	52.2
Percent of total vocational rehabilitation clients who were beneficiaries		10.3	6.6	10.6	12.7

[1] Information based on R-200 reports of the Rehabilitation Services Administration, December 15, 1970. Classifications based on vocational rehabilitation agency closure definitions. Cases in active service or referral status and not closed are not included in table. Total closure data derived from *Caseload Statistics, Vocational Rehabilitation Agencies, Fiscal Year 1969*, Rehabilitation Services Administration, table 5.

Selection for Social Security Reimbursement

The costs of services to nearly half of the 13,450 disabled workers rehabilitated in fiscal year 1969 were reimbursed in part or full by social security trust funds (table 2).

The program is intended to provide reimbursement for services only to disabled beneficiaries with substantial vocational potential.[6] According to selec-

TABLE 2.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Selected characteristics by status under the trust fund program involving reimbursement for services provided by State vocational rehabilitation agencies

Demographic and benefit characteristics	Number	Percentage distribution		
		Total	Reimbursed	Not reimbursed
Total	13,450	100.0	46.1	53.9
Sex:				
Male	10,487	100.0	47.9	52.1
Female	2,963	100.0	39.4	60.6
Age in 1969:				
Under age 50	6,853	100.0	53.9	46.1
Age 50 and over	6,522	100.0	38.0	62.0
Unknown	6,575	100.0	30.7	69.3
Dependents: [1]				
None	6,395	100.0	41.1	58.9
1 or 2	3,880	100.0	49.6	50.4
3 or 4	2,145	100.0	51.7	48.3
5 or more	1,030	100.0	51.8	48.2
Region: [2]				
New England	439	100.0	31.7	68.3
Middle Atlantic	2,099	100.0	43.0	57.0
South Atlantic	1,279	100.0	44.3	55.7
East South Central	2,574	100.0	38.3	61.7
East North Central	2,587	100.0	41.8	58.2
West North Central	1,078	100.0	56.5	43.5
West South Central	1,531	100.0	42.6	57.4
Mountain	377	100.0	49.1	50.9
Pacific	1,427	100.0	73.7	26.3
Other	59	100.0	33.9	66.1
Entitlement date:				
1970	545	100.0	38.2	61.8
1969	590	100.0	36.8	63.2
1968	1,826	100.0	39.9	60.1
1967	2,922	100.0	49.2	50.8
1966	2,451	100.0	51.5	48.5
1965	1,718	100.0	50.6	49.4
Before 1965	3,263	100.0	44.0	56.0
Unknown	135	100.0	25.2	74.8
Total benefits:				
Under $100 [3]	2,777	100.0	36.9	63.1
100–149	4,314	100.0	43.9	56.1
150–199	2,459	100.0	48.1	51.9
200–249	1,141	100.0	49.7	50.3
250 or more	2,759	100.0	55.3	44.7
Primary insurance amount:				
Under $80	995	100.0	30.8	69.2
80–99	1,142	100.0	39.5	60.5
100–119	2,229	100.0	41.9	58.1
120–139	2,020	100.0	43.9	56.1
140–169	3,243	100.0	49.6	50.4
170 or more	3,117	100.0	58.2	41.8
Unknown [4]	704	100.0	27.3	72.7

[1] Entitled to social security benefits as dependent spouses or children of worker.
[2] State of residence grouped by rehabilitation agency region, I–IX, respectively.
[3] Includes some whose family benefit amount was unavailable.
[4] The PIA of many terminated beneficiaries are removed from benefit records at the time of benefit conversions.

tion criteria, the vocational rehabilitation agencies may request reimbursement only for services to disabled beneficiaries who could be expected to return to sustained, competitive employment and only to those who require vocational rehabilitation services in order to perform such work. Services should continue to be provided under the regular financing arrangements to those beneficiaries (1) who could not expect to engage in competitive work but who could be helped in improving their ability to take care of themselves or do housework or work under sheltered conditions and (2) who could be expected to return to competitive working capacity without services—those, for example, who are involved in medical recovery but who could benefit from resources of the rehabilitation agencies in facilitating such recovery. Data are not available on the characteristics of referred beneficiaries who were not rehabilitated. A comparison of the characteristics of the rehabilitated beneficiaries, however, indicates what factors affected the selection of beneficiaries for trust fund reimbursement.

Among all beneficiaries who subsequently became rehabilitated, relatively more men than women, more of the younger group, and more of those with dependents were selected for reimbursement.

A far greater proportion of cases in the Pacific region were selected for reimbursement than of those in other regions. The California agencies designated nearly all beneficiaries accepted for services as trust fund cases eligible for reimbursement.

The proportion selected for reimbursement was greater among workers with higher family benefits and higher individual benefits (according to primary insurance amount). As the differences in benefits are based on differences in predisability earnings, this finding suggests that disabled workers with skilled and white-collar employment were considered more likely candidates for return to competitive employment.

Recovery After Rehabilitation

Among the group of disabled workers rehabilitated in fiscal year 1969 under the trust fund financing program, more than 2 out of 5 had disability benefits terminated for recovery within the following year and a half (table 3).[7] A few died or reached age 65. About half remained in disabled-worker beneficiary status. Of those who recovered, about 1 in 10 became reentitled to disability benefits by the end of 1970.

Data on beneficiary status at a point in time beyond December 1970 might reflect more recoveries among rehabilitants with sustained work attempts and recoveries, as some of them might not have completed trial work attempts within 1 or 2 years of rehabilitation closure. For others who were rehabilitated but whose benefits were not terminated, the rehabilitation may have been to the point that they were able to do limited self-employment work or housework, yet they did not return to the level of competitive employment required for benefit termination. Many may have returned to gainful employment but may not have been able to continue in it over an extended period of time.

TABLE 3.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Recovery and other benefit termination experience, by trust fund status and social characteristics, December 1970

Social characteristics	Number	Percentage distribution						
		Total	Recovery [1]			Age 65	Death	Continuing disability
			Total	Continuing in recovery	Return to disability			
Total	13,450	100.0	34.0	30.6	3.4	1.8	3.1	61.1
Reimbursed, total	6,194	100.0	44.7	40.9	3.8	1.1	2.5	51.6
Sex:								
Men	5,027	100.0	46.8	43.0	3.8	1.2	2.7	49.2
Women	1,167	100.0	35.4	31.5	3.9	.9	1.5	62.0
Age in 1969:								
Under 30	421	100.0	60.1	58.0	2.1	------	.7	39.2
30–34	500	100.0	60.5	57.3	3.2	------	1.0	38.5
35–39	777	100.0	58.6	53.5	5.1	------	1.2	40.2
40–44	929	100.0	54.4	49.9	4.5	------	1.6	43.9
45–49	975	100.0	46.0	41.0	5.0	------	1.7	52.2
50–54	989	100.0	38.4	35.2	3.2	------	3.0	58.5
55–59	847	100.0	31.4	27.9	3.5	------	5.9	62.7
60 and over	643	100.0	15.7	13.4	2.3	10.9	3.4	70.0
Unknown	23	100.0	8.7	------	8.7	------	13.0	78.3
Race:								
White	5,308	100.0	44.9	41.2	3.7	1.2	2.5	51.4
Negro	840	100.0	42.9	38.1	4.8	.8	2.4	53.9
Other	46	100.0	47.9	45.7	2.2	------	2.2	50.0
Not reimbursed, total	7,256	100.0	24.9	21.8	3.1	2.4	3.6	69.1
Sex:								
Men	5,460	100.0	27.2	24.0	3.2	2.5	3.9	66.4
Women	1,796	100.0	17.9	15.1	2.8	2.2	2.6	77.2
Age in 1969:								
Under 30	353	100.0	41.9	39.4	2.5	------	2.0	56.1
30–34	432	100.0	42.8	39.8	3.0	------	.7	56.5
35–39	556	100.0	44.8	39.4	5.4	------	.7	54.5
40–44	813	100.0	38.2	34.3	3.9	------	1.4	60.4
45–49	1,007	100.0	33.7	29.6	4.1	------	2.4	64.0
50–54	1,098	100.0	23.4	20.2	3.2	------	4.4	72.2
55–59	1,239	100.0	16.1	13.7	2.4	------	4.8	79.0
60 and over	1,706	100.0	6.5	4.9	1.6	10.3	5.7	77.5
Unknown	52	100.0	9.6	------	9.6	------	13.5	76.9
Race:								
White	5,953	100.0	24.5	21.4	3.1	2.5	3.7	69.3
Negro	1,223	100.0	25.2	22.6	2.6	2.4	3.4	69.1
Other	80	100.0	38.8	37.5	1.3	1.3	2.5	57.5

[1] Recovery refers to OASDI benefit termination for medical improvement or return to sustained employment.

A much smaller proportion recovered among beneficiaries not selected for reimbursement. Only about 1 out of 4 had OASDI benefits terminated for recovery, and nearly 3 out of 4 remained disability beneficiaries a year and a half after vocational rehabilitation.

Social and Demographic Characteristics

Of those rehabilitated under the trust fund program, about 80 percent were men and about 70 percent were under age 55 (table 3). Of all workers with disability allowances in 1967, 75 percent were men but less than half were under age 55. Those rehabilitated, as might be expected, were the younger beneficiaries. The worker's prospects of returning to sustained, competitive employment after disability decline with age. Reduced functional capacity due to physical degeneration and progressive disease conditions is associated with older age, and fewer work opportunities are available to older workers. When subsequent benefit experience is examined in terms of social characteristics, a far higher recovery rate among the younger workers is apparent, with more than 50 percent recovered among those under age 40 and less than 40 percent recovered among those aged 50 and over. A somewhat higher beneficiary termination rate because of recovery is seen for men than for women, but little difference is apparent by race. For the rehabilitants not under the trust fund program, the experience by age and sex was the same.

A larger proportion of beneficiaries left the social security rolls after rehabilitation under the trust fund program among workers residing in the Pacific and

TABLE 4.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Recovery and other benefit termination experience, by trust fund status, region, and State, December 1970

Region and State of residence [1]	Number	Percentage distribution						
		Total	Recovery [2]			Age 65	Death	Continuing disability
			Total	Continuing in recovery	Return to disability			
Total	13,450	100.0	34.0	30.6	3.4	1.8	3.1	61.1
Reimbursed, total	6,194	100.0	44.7	40.9	3.8	1.1	2.5	51.6
Region:								
New England	139	100.0	40.3	36.7	3.6	2.9	2.2	54.7
Middle Atlantic	902	100.0	38.1	35.4	2.7	1.2	3.3	57.4
South Atlantic	567	100.0	46.0	43.9	2.1	1.1	2.1	50.8
East South Central	987	100.0	51.3	47.2	4.1	.4	1.8	46.5
East North Central	1,082	100.0	41.1	36.5	4.6	2.0	3.1	53.7
West North Central	609	100.0	38.6	34.0	4.6	1.6	2.5	57.3
West South Central	652	100.0	39.6	36.8	2.8	1.4	2.5	56.6
Mountain	185	100.0	44.9	39.5	5.4	------	4.9	50.3
Pacific	1,051	100.0	54.9	50.1	4.8	.4	1.7	43.0
Other	20	100.0	30.0	25.0	5.0	------	------	70.0
Not reimbursed, total	7,256	100.0	24.9	21.8	3.1	2.4	3.6	69.1
Region:								
New England	300	100.0	28.4	25.7	2.7	2.7	3.0	66.0
Middle Atlantic	1,197	100.0	23.0	20.2	2.8	4.3	4.2	68.6
South Atlantic	712	100.0	21.1	18.0	3.1	2.9	3.4	72.6
East South Central	1,587	100.0	25.5	22.7	2.8	1.1	3.0	70.3
East North Central	1,505	100.0	20.9	18.3	2.6	1.9	4.7	72.5
West North Central	469	100.0	25.6	22.6	3.0	2.1	2.3	69.9
West South Central	879	100.0	24.2	20.0	4.2	3.5	3.3	68.9
Mountain	192	100.0	41.2	37.0	4.2	2.1	2.6	54.2
Pacific	376	100.0	41.5	37.8	3.7	1.3	3.5	53.7
Other	39	100.0	15.4	10.3	5.1	------	5.1	79.5

[1] State of residence grouped by rehabilitation agency region, I–IX, respectively.
[2] Recovery refers to OASDI benefit termination for medical improvement or return to sustained employment.

Southern States than among the workers who reside in other areas (table 4). A larger proportion of those in the Pacific and Mountain States left the rolls among rehabilitants not under the trust fund program. Beneficiaries rehabilitated in California had a higher recovery and termination rate than rehabilitants in other States. Presumably, the method of selection for services and the availability of employment are important factors to consider in determining the reasons for these regional differences.

The difference in recovery rates between trust-fund and nontrust-fund designates is greatest for those rehabilitated in the South. This finding may indicate that potential return to competitive employment is taken into greater consideration in the selection of cases for reimbursement in that area. Little difference in the benefit termination rate is apparent for rehabilitated beneficiaries in the Mountain States according to selection for reimbursement of the cost of services.

Family and Benefit Characteristics

A greater proportion of benefit terminations because of recovery occurred among those with a spouse or several dependents: 48–53 percent recovered among those with reimbursed services who had two or more dependents in contrast to less than 40 percent of those with one or none (table 5). The same relationship between the rates for termination after recovery and family size was indicated for those whose service costs were not reimbursed by the social security trust funds.

A large proportion of these beneficiaries were entitled to social security benefits before the provisions of the trust fund program went into effect. More than one-third were entitled before 1966. Under the initial implementation of the program, beneficiaries already accepted and receiving services from vocational rehabilitation agencies could be selected for reimbursement for further services.

A lower recovery rate is apparent for those with dates of social security entitlement furthest in the past. The longer the period of disability, the more difficult the return to sustained employment may be. A higher relapse rate is shown for the most recently entitled. The information obtained for this study reflects, however, only the latest date of entitlement; many with entitlement in 1969 and 1970 may have had previous periods of disability entitlement.

More than 50 percent of the rehabilitants in the trust fund program and 40 percent of those with rehabilitation services through the regular financing procedures had a primary insurance benefit of $140 or more, compared with about 30 percent of all disabled workers awarded benefits in 1969. Thus, the beneficiaries who received services and became rehabilitated had a higher level of predisability earnings than other workers awarded disability benefits, as the differences in insurance amounts are based on level of earlier earnings.

Not only do rehabilitated beneficiaries appear to have greater predisability earnings than other beneficiaries, but, among the rehabilitated, those with higher predisability earnings appear more likely to be able to engage in sustained work leading to benefit termination.[8] A greater proportion of the higher earners recovered than of the lower earners among

TABLE 5.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Recovery and other benefit termination experience, by trust fund status and family and benefit characteristics, December 1970

Family and benefit characteristics	Number	Percentage distribution						
		Total	Recovery[1]			Age 65	Death	Continuing disability
			Total	Continuing in recovery	Return to disability			
Total	13,450	100.0	34.0	30.6	3.4	1.8	3.1	61.1
Reimbursed, total	6,194	100.0	44.7	40.9	3.8	1.1	2.5	51.6
Entitled spouse:								
Spouse	2,643	100.0	50.6	46.6	4.0	1.0	2.2	46.1
No spouse	3,551	100.0	40.2	36.5	3.7	1.2	2.7	55.9
Dependents:[2]								
None	2,628	100.0	38.6	35.0	3.6	2.0	2.3	57.1
1	1,011	100.0	44.7	40.2	4.5	.9	2.3	52.2
2	913	100.0	48.3	44.8	3.5	.5	3.0	48.2
3	685	100.0	52.1	48.9	3.2	.3	2.8	44.8
4	423	100.0	51.3	47.5	3.8	.5	1.9	46.3
5 or more	534	100.0	53.5	48.3	5.2	------	3.2	43.3
Total benefits:								
Under $80	313	100.0	31.0	28.1	2.9	2.6	2.2	64.2
80–99	606	100.0	41.1	37.3	3.8	1.8	2.0	55.1
100–149	1,893	100.0	42.2	38.2	4.0	1.7	2.5	53.5
150–199	1,182	100.0	36.2	31.0	5.2	.6	2.0	61.2
200–249	567	100.0	55.2	51.7	3.5	.5	2.5	41.8
250–299	507	100.0	55.5	52.5	3.0	.4	3.4	40.8
300–349	648	100.0	61.2	58.6	2.6	.6	2.0	36.1
350–399	300	100.0	35.0	31.3	3.7	.3	2.0	62.7
400 or more	72	100.0	22.3	18.1	4.2	------	16.7	61.1
Unknown	105	100.0	77.1	75.2	1.9	1.0	1.9	20.0
Entitlement date:								
1970	208	100.0	96.2	96.2	------	------	------	3.8
1969	217	100.0	72.4	2.8	69.6	------	.5	27.2
1968	728	100.0	42.5	38.9	3.6	.5	3.2	53.8
1967	1,438	100.0	50.8	49.5	1.3	.9	2.2	46.1
1966	1,262	100.0	48.4	47.1	1.3	.6	2.1	48.9
1965	870	100.0	38.0	37.4	.6	1.3	2.4	58.4
Before 1965	1,437	100.0	27.7	26.3	1.4	2.4	3.6	66.2
Unknown	34	100.0	100.0	100.0	------	------	------	------
Primary insurance amount:								
Under $80	306	100.0	20.3	16.7	3.6	1.0	.7	78.1
80–99	451	100.0	26.6	22.6	4.0	.9	1.8	70.7
100–119	935	100.0	37.2	31.3	5.9	1.2	2.4	59.3
120–139	887	100.0	42.3	37.8	4.5	.9	2.1	54.7
140–169	1,610	100.0	38.6	34.2	4.4	.9	2.3	58.2
170 or more	1,813	100.0	61.8	59.9	1.9	1.6	3.5	33.0
Unknown	192	100.0	60.9	56.9	4.0	.5	1.5	37.1

See footnotes at end of table.

TABLE 5.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Recovery and other benefit termination experience, by trust fund status and family and benefit characteristics, December 1970—*Continued*

Family and benefit characteristics	Number	Percentage distribution						
		Total	Recovery [1]			Age 65	Death	Continuing disability
			Total	Continuing in recovery	Return to disability			
Not reimbursed, total	7,256	100.0	24.9	21.8	3.1	2.4	3.6	69.1
Entitled spouse:								
Spouse	2,602	100.0	31.2	27.2	4.0	2.1	3.4	63.3
No spouse	4,654	100.0	21.4	18.8	2.6	2.6	3.7	72.4
Dependents: [2]								
None	3,767	100.0	19.5	17.0	2.5	3.4	3.4	73.7
1	1,075	100.0	24.6	21.6	3.0	2.9	4.2	68.4
2	881	100.0	32.9	30.3	2.6	1.0	3.3	62.8
3	649	100.0	32.7	28.8	3.9	.8	3.7	62.9
4	388	100.0	33.2	30.4	2.8	------	4.6	62.1
5 or more	496	100.0	34.7	27.2	7.5	.2	3.8	61.3
Total benefits:								
Under $80	649	100.0	16.6	14.3	2.3	2.8	3.1	77.5
80–99	936	100.0	21.2	19.1	2.1	3.4	4.5	70.8
100–149	2,421	100.0	22.5	19.4	3.1	3.2	3.6	70.7
150–199	1,276	100.0	21.9	18.7	3.2	1.0	2.0	75.1
200–249	574	100.0	32.1	27.9	4.2	1.7	3.5	62.7
250–299	493	100.0	36.2	32.5	3.7	2.4	3.4	58.0
300–349	458	100.0	44.5	42.1	2.4	.9	3.5	51.1
350–399	212	100.0	17.0	13.7	3.3	------	1.9	81.1
400 or more	69	100.0	13.0	11.6	1.4	1.4	24.6	60.9
Unknown	168	100.0	36.4	31.0	5.4	4.8	7.7	51.2
Entitlement date:								
1970	337	100.0	44.5	44.5	------	------	------	55.5
1969	373	100.0	24.9	2.1	22.8	------	2.1	72.9
1968	1,098	100.0	23.1	19.5	3.6	1.6	3.9	71.4
1967	1,484	100.0	31.0	29.4	1.6	2.3	3.2	63.5
1966	1,189	100.0	31.0	28.7	2.3	2.1	4.7	62.2
1965	848	100.0	23.6	22.3	1.3	2.8	2.9	70.6
Before 1965	1,826	100.0	12.6	10.6	2.0	4.1	4.4	78.9
Unknown	101	100.0	51.5	51.5	------	------	------	48.5
Primary insurance amount:								
Under $80	689	100.0	9.6	7.7	1.9	1.5	3.0	85.9
80–99	691	100.0	13.8	10.0	3.8	2.2	2.5	81.6
100–119	1,294	100.0	17.4	13.7	3.7	2.1	3.2	77.3
120–139	1,133	100.0	22.1	18.2	3.9	2.8	2.8	72.3
140–169	1,633	100.0	23.4	19.5	3.9	1.7	3.6	71.2
170 or more	1,304	100.0	43.0	41.2	1.8	4.4	6.1	46.5
Unknown	512	100.0	43.2	42.4	.8	1.3	2.1	53.3

[1] Recovery refers to OASDI benefit termination for medical improvement or return to sustained employment.
[2] Entitled to social security benefits as dependent spouses or children of worker.

the rehabilitants in the trust fund program: about 60 percent of those with the highest primary insurance amounts ($170 or more), compared with less than 40 percent of those with lower amounts.

Similarly, when those rehabilitated without reimbursement are considered, the proportion of rehabilitants with benefits terminated among those with the highest primary insurance amounts was about double that for workers with lower amounts (40 percent, compared with less than 20 percent). Persons with higher earnings in the past may have greater vocational skills and more opportunities to engage in work not physically demanding.

Earnings After Rehabilitation

More than half the workers who were reported rehabilitated by the vocational rehabilitation agencies in fiscal year 1969 under the trust fund program had earnings in 1970 (table 6). Among the group of those rehabilitants who left the beneficiary rolls by termination and who remained in nonbeneficiary status, about 90 percent had earnings in covered employment, including nearly 60 percent with earnings of $4,000 or more and about 25 percent with earnings of $7,000 or more.

TABLE 6.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Recovery and other benefit termination experience as of December 1970, by 1970 earnings after rehabilitation and trust fund status

Amount of earnings after rehabilitation [1]	Total	Recovery [2]		Age 65	Death	Continuing disability
		Continuing recovery	Return to disability			
Reimbursed, total	6,194	2,532	238	70	155	3,199
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
No earnings	44.2	9.3	70.2	68.6	98.7	66.7
$1–49	1.8	.9	5.0	4.3	.0	2.3
50–999	8.9	6.1	16.8	14.3	.0	10.9
1,000–1,999	7.2	7.5	5.0	7.1	.0	7.5
2,000–2,999	5.4	8.5	2.5	2.9	.0	3.4
3,000–3,999	5.0	10.0	.0	1.4	.0	1.8
4,000–4,999	6.0	12.4	.0	1.4	.6	1.8
5,000–5,999	5.0	10.3	.0	.0	.6	1.5
6,000–6,999	5.1	10.4	.0	.0	.0	1.6
7,000–7,799	3.4	7.3	.0	.0	.0	.9
7,800 or more	7.9	17.4	.4	.0	.0	1.5
Not reimbursed, total	7,256	1,583	222	176	261	5,014
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
No earnings	61.2	12.0	73.0	84.1	99.2	73.4
$1–49	1.8	1.6	3.6	1.7	.4	1.9
50–999	8.9	8.5	14.0	6.8	.4	9.4
1,000–1,999	6.8	8.0	8.1	5.7	.0	6.8
2,000–2,999	3.5	9.3	.5	1.1	.0	2.1
3,000–3,999	3.7	10.7	.5	.6	.0	2.0
4,000–4,999	3.7	12.2	.0	.0	.0	1.5
5,000–5,999	3.1	11.1	.5	.0	.0	1.0
6,000–6,999	2.1	7.7	.0	.0	.0	.7
7,000–7,799	1.6	6.3	.0	.0	.0	.4
7,800 or more	3.4	12.6	.0	.0	.0	1.0

[1] Earnings based on earnings taxable under social security, which are subject to maximum limits. No covered earnings since 1950 reported for 1 percent of the rehabilitants: some may have had noncovered earnings, others may have been incorrectly identified by account number.
[2] Recovery refers to OASDI benefit termination for medical improvement or return to sustained employment.

A much smaller proportion of rehabilitated beneficiaries had earnings among those for whom services were provided without reimbursement from social security trust funds. Only about 40 percent had earnings in 1970. This low proportion is consistent with their reduced rehabilitation potential, as indicated by their older age as a group and their lower benefit termination rate.

Of the trust-fund rehabilitants who were able to return to work in fiscal years 1969 and 1970, almost

TABLE 7.—Disabled-worker beneficiaries rehabilitated in fiscal year 1969: Recovery and other benefit termination experience as of December 1970, by type of earnings, duration of earnings after rehabilitation, and trust fund status, fiscal years 1969 and 1970

Type of earnings and duration of earnings [1]	Total	Recovery [2]		Age 65	Death	Continuing disability
		Continuing recovery	Return to disability			
	Reimbursed					
Total number	6,194	2,532	238	70	155	3,199
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Wages	55.9	85.2	47.9	30.0	9.0	36.1
Self-employment	3.5	4.0	2.1	1.4	.0	3.4
Agricultural	.4	.3	.0	.0	.0	.5
More than 1 type	3.0	5.3	2.5	1.4	.0	1.3
None	37.2	5.2	47.5	67.1	91.0	58.6
Quarters with earnings, total percent	100.0	100.0	100.0	100.0	100.0	100.0
8	24.6	47.9	2.9	5.7	.0	9.3
7	8.4	15.2	1.3	4.3	1.3	4.0
6	8.0	12.7	2.9	2.9	.0	5.2
5	4.0	5.8	4.2	5.7	.0	2.7
4	4.2	4.9	5.5	4.3	.0	3.8
3	3.4	2.9	8.4	.0	.0	3.6
2	5.0	3.3	10.9	5.7	2.6	5.9
1	5.2	2.1	16.4	4.3	5.2	6.8
None	37.2	5.2	47.5	67.1	91.0	58.6
	Not reimbursed					
Total number	7,256	1,583	222	176	261	5,014
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Wages	38.3	83.2	35.1	16.5	4.2	26.7
Self-employment	2.5	3.4	2.7	2.3	.0	2.4
Agricultural	1.0	.6	1.4	.6	.4	1.1
More than 1 type	1.9	4.4	3.6	.0	.0	1.3
None	56.3	8.4	57.2	80.7	95.4	68.4
Quarters with earnings, total percent	100.0	100.0	100.0	100.0	100.0	100.0
8	14.9	44.9	1.8	5.1	.0	7.1
7	5.2	13.4	3.2	1.7	.0	3.1
6	5.5	11.6	5.0	2.3	.0	3.9
5	3.0	6.2	1.8	1.1	.0	2.3
4	3.6	5.8	1.8	1.7	.0	3.2
3	3.2	3.8	4.1	1.7	.0	3.2
2	4.6	3.5	10.8	2.8	1.9	4.8
1	3.8	2.5	14.4	2.8	2.7	3.9
None	56.3	8.4	57.2	80.7	95.4	58.4

[1] Earnings based on earnings taxable under social security, which are subject to maximum limits. Self-employment earnings in 1970 not included.
[2] Recovery refers to OASDI benefit termination for medical improvement or return to sustained employment.

all were working as employees; relatively few were engaged in self-employment (table 7). Most of those who returned to work for earnings had worked for more than a year. One-fourth of all disabled workers rehabilitated under the trust fund program had earnings in every quarter in the 2-year period between July 1968 and June 1970. Among those who left the OASDI rolls, about four-fifths had earnings for more than a year and nearly half had earnings in every quarter in fiscal years 1969 and 1970.

The proportion of nontrust-fund rehabilitants who were employed as wage earners or were self-employed was about the same as the proportion for those in the trust fund program who left the benefit rolls. The proportions for those who were able to sustain employment were also similar for the trust-fund rehabilitant and the nontrust-fund rehabilitant.

Beneficiaries who are men or who are younger may be expected to have greater success in returning to work. Among those in the trust fund program, far more of the younger rehabilitants under age 50 had earnings in 1970 than of the rehabilitants aged 50 or older (nearly 65 percent, compared with less than 45 percent), as the data that follow indicate. The difference between men and women who had earnings was smaller than the differences between age groups. Only 1 percent of the women had earnings as high as $7,800, however, and 10 percent of the men had earnings at that level or above.

TABLE 8

Sex and age	Disabled workers with reimbursed services, fiscal year 1969				
	Number	Percentage distribution by 1970 earnings			
		Total	None	Up to $7,800	$7,800 or more
Total	6,194	100.0	44.2	47.9	7.9
Men	5,027	100.0	42.1	48.4	9.5
Women	1,167	100.0	53.3	45.5	1.2
Under age 50	3,692	100.0	35.6	54.1	10.3
Aged 50 and over	2,502	100.0	56.9	38.7	4.4

Since the inception of the trust fund program, the number of beneficiaries reported rehabilitated by State vocational rehabilitation agencies has markedly increased. About a third of those beneficiaries who are rehabilitated and more than 40 percent of those selected for reimbursement leave the social security benefit rolls, according to the data on the 1969 rehabilitated beneficiaries. It may be assumed that the enactment of the trust fund reimbursement program has increased the number of beneficiary rehabilitants and the number who leave the social security rolls.

To measure the actual effect of the trust fund program on services apart from other factors influencing their provision, or to measure the effect of the delivery of vocational rehabilitation services on those who recover and leave the OASDI rolls, would require data that go beyond that available for this descriptive study. Such an evaluation would have to take into careful account such things as factors influencing acceptance for services distinct from the the reimbursement procedures—such as other funds

available for the provision of services—and legislative provisions affecting the characteristics of referred beneficiaries. It would have to examine, as well, the instrumental effect of services in helping the disabled worker to return to work, distinct from other factors that affect reemployment—medical recovery, for example, and employment experience and opportunity. Information would also be needed on the relationship, in cost-benefit terms, of the increases in employment and cessation of income-maintenance benefits to the costs of providing the services.

Notes and References

(1) For a discussion of provisions, initial program implementation, and previous beneficiary rehabilitation experience, see Ralph Treitel, "Financing of Disability Beneficiary Rehabilitation," *Social Security Bulletin,* April 1969.

(2) *Study of Experience in Financing the Vocational Rehabilitation of Disability Beneficiaries from the Social Security Trust Funds,* Report to the Senate Finance Committee, Social Security Administration, January 1972.

(3) Rehabilitation Services Administration, Social and Rehabilitation Service, *Characteristics of Clients Rehabilitated in Fiscal Years 1966–1970,* table 11.

(4) For discussion of the concepts of disability and rehabilitation, see Marvin Sussman (ed.), *Sociology and Rehabilitation,* American Sociological Association, 1966. For further information on administrative definitions in the social security and vocational rehabilitation agency programs, see the *Vocational Rehabilitation Counselors Handbook for SSA Disability Applicants,* Rehabilitation Services Administration/Social Security Administration, June 1970 (revised).

(5) Treitel, Ralph. *Identifying Disabled Workers Who May Return to Work: Rehabilitation and Medical-Improvement Screening Decisions,* forthcoming Research and Statistics Note, Office of Research and Statistics, Social Security Administration, April 1973.

(6) *Vocational Rehabilitation Counselors Handbook for SSA Disability Applicants,* section 700, *op. cit.*

(7) Similar findings were seen in the study of beneficiaries rehabilitated in fiscal year 1968 (Report to Finance Committee, *op. cit.*).

(8) For a discussion of the effects of rehabilitation programs in relation to a worker's predisability income and education, see Donald M. Bellante, "A Multivariate Analysis of a Vocational Rehabilitation Program," *Journal of Human Resources,* Spring 1972.

Della. 16 mm. Color. Sound. 12 min. A/V-Publications Office, Kenny Rehabilitation Institute, 1800 Chicago Ave., Minneapolis, Minn. 55404. Rental, $10 per week. Purchase, $110.

The film depicts the results of passive deterioration of a 35-year-old deaf paraplegic prior to rehabilitation. It portrays her early physical rehabilitation and reeducation in living with a handicap and illustrates her present independent mode of living and her contributory influence on the deaf children of her community.

Also, from the above address, ***Basic Positioning.*** 35 mm. filmstrip with 33⅓ record. Color. 11 min. Rental, $6 per week. Purchase, $30.

It demonstrates methods for preventing complications through correct positioning techniques. Supine, prone, side-lying and sitting positions are outlined.

Through Different Eyes. Color. Sound. 15 min. Peach Enterprises, 4649 Gerald St., Warren, Mich. 48092. Sale only, $185.

Mentally retarded children learn basic self-care, motor, speech, and listening skills. The setting is a day training program. Parent voices, superimposed during the child's activities, comment on how this training has affected their children's lives. ■

Ex-Heavy Equipment Operator Becomes Auditor

The following is reprinted from *Roundup,* published by the California Department of Rehabilitation. The true identity of the client is on State files.

Peter Gentry was 35 years old when a deteriorating hip condition prevented him from working any longer as a heavy equipment operator in the sand, gravel and construction business. When he applied for Social Security disability benefits, Violet M. Shattuck, counselor in our Disability Determination Program's Foothill Area Office in Los Angeles, called his case to the attention of our Bakersfield Branch Office.

Going to work on the case, his counselor learned that Gentry's work history was excellent with his having had only three employers in 14 years. Medical records showed that he had undergone surgery and plastic reconstruction of the hip. Although the operation relieved most of the pain, he still had severe limitations to his mobility.

The counselor learned that Gentry had completed some junior college work in general business subjects but had no marketable skill. He sponsored Gentry for a 5-week course at a hotel-motel-apartment house management school. The training enabled him to obtain a good job as a night auditor, starting at $450 per month.

In his position Gentry may continue his formal education if he desires. As the result of his employment, his social security disability benefit of $227 per month has been discontinued. ■

NEW PUBLICATIONS

Mental Retardation and the Future. Kevin B. McGovern and Philip L. Browning, editors. Rehabilitation Research and Training Center in Mental Retardation, University of Oregon, Eugene, Ore. 97403. 80 pages.

A training seminar entitled, "Rehabilitation of the Retarded: The Future," which was held in February 1970 at the University of Oregon, provided input and direction for this publication of a series of eight papers written by rehabilitation professionals. Examining what the future holds in store for the rehabilitation field, this monograph presents studies and analyses of specific trends in mental retardation in the areas of education, rehabilitation, and social work. It also provides general predictions regarding new changes to be made and directions to be taken in decades to come.

This publication was supported in part by an SRS-grant.

The Wagner O'Day Act. A Manual For Agencies For The Handicapped. Goodwill Industries of America, Inc., 9200 Wisconsin Ave., Washington, D.C. 20014. 33 pages. $2.75.

"The procedures of selling to the government under the Wagner O'Day Act are entirely different from normal procurement practices." These words come from the manual's foreword. Accordingly, the manual explains the broadened coverage of the law that entitles all agencies to sell to the government.

Although the manual was prepared for Goodwill, it can be used by any nonprofit agency for the handicapped.

Blindness Annual 1972. American Association of Workers for the Blind, Inc., 1511 K St., N.W. Washington, D.C. 223 pages.

This ninth issue of *Blindness Annual* is dedicated to Mary E. Switzer, "its indispensable first friend in power. . . ."

As in years gone by this publication brings a variety of indepth studies, historical perspectives, and research results to the attention of persons working with and for blind people.

The lead article gives an indepth chronicle of the American Association of Instructors of the Blind. Its second entry by George and Jacqueline Mallinson presents a provocative look at blind jazz artists who have affected the status of this American medium in the world. Two appendices record many facts about individual artists.

The eighth supplement to U.S. Government-sponsored research on blindness brings up to date initiatives of HEW, National Eye Institute, and the Veterans Administration.

Art Not By Eye: The Previously Sighted Visually Impaired Adult in Fine Arts Programs. Yasha Lisenco. American Foundation For The Blind, Inc., 15 West 16th St., New York, N.Y. 10011. 114 pages. $3.75.

Teachers and administrators of community art programs are informed of the techniques and methods needed to provide the most varied aesthetic outlets for their blind students.

Dr. Lisenco demonstrates that although most visually handicapped persons cannot perceive differences in the appearance of objects and scenes due to light, movement or shifts in the viewing position, this does not mean that their art is static, dull or unimaginative. Because visually handicapped people relate to the external world through touch rather than visual meanings, they will naturally stress the three-dimensional and structural qualities of a work of art rather than its tones, colors or lines.

Living At Your Best With Multiple Sclerosis. George H. Hess, M.D. Charles C Thomas, 301–327 East Lawrence Ave., Springfield, Ill. 62703. 111 pages. $7.95, hardcover; $4.95, paperback.

The short introduction to patients emphasizes the fact that this book is not a substitute for a physician. It underlines the precept that the book should be a great help to both physician and patient, if properly used.

Covered in its pages are descriptions of the disease, its diagnosis, theories of cause and treatment, use of medications, use of physical therapy, and discussions on various special problems attendant to the disease. Other topics include nutrition and mechanical aids. A useful appendix includes such topics as exercise, histamine administration, and allergic substances.

Aids For Children—Technical Aids for Physically Handicapped Children. ICTA Information Center, Fack, S–161 03 Bromma 3, Sweden. 87 pages. $2.

Descriptions of technical aids designed mainly for children with motor disabilities are contained in this comprehensive international catalogue. The publication includes items which were determined to be easy to use, readily adaptable, and possible to construct in an institution or at home.

The catalogue divides the 300 aids into general categories listing equipment for physiotherapy, occupational therapy, locomotion, and transport; aids used in daily living activities; special chairs and accessories; and various educational and school aids. Each item report also includes the name and address of the distributor or manufacturer. The catalogue itself was not, however, published merely as a presentation of specific rehabilitation information; rather, it was intended to serve as an immediate source of ideas and inspiration for both parents and pediatric rehabilitation personnel the world over.

The Sub-Professional And The Poor. Dorothy Rigdon, editor. Social and Rehabilitation Service, 330 C St., S.W., Washington, D.C. 20201. 56 pages.

This publication reports on the conference that reviewed 22 SRS-supported demonstration projects in which subprofessional persons are employed. The monograph reproduces two of the conference's three papers and summarizes group sessions. Finally, a capsule description is given of each of the 22 projects.

Subsidizing The Poor. Joe R. Feagin, Charles Tilly, and Constance W. Williams. D. C. Heath and Company, 125 Spring St., Lexington, Mass. 02173. 199 pages. $15.

"An Evaluation of the Boston Housing Authority Program" is the subtitle of this book. As the subtitle indicates, the book not only describes Boston's program to provide housing for families displaced by urban renewal, but it assesses the impact of the program on the lives of people affected by the project.

In addition to the specific program of the Boston Housing Authority, the book delves into related areas, such as alternative housing policies for poor families, social geography, the black ghetto, and political controversy over rent subsidies.

Independent Living Without Sight and Hearing. Richard Kinney. Hadley School for the Blind, 700 Elm Street, Winnetka, Ill. 60093. 102 pages. $3.

As the basic text in a correspondence course for Braille-reading deaf-blind persons, this book discusses such topics as making the most of our senses, voices, reading and minds, communications techniques, independence at home, travel hints, and money management. Each chapter is followed by an exercise that reviews the tenets presented.

The inkprint edition is offered as a resource to friends and families of deaf-blind persons and to professional persons working with them.

Signs of Silence. Bernard Bragg and the National Theatre of the Deaf. Helen Powers. Dodd, Mead & Co., 79 Madison Ave., New York, N.Y. $6.95. 176 pages.

The Preface to this volume, written by Robert F. Panara, tells it all:

This book is more than a variation on the theme of involvement. It is the story of a man, deaf from birth, who followed his heart's desire and became the Prince of Players on the silent stage.

It is written by a writer in search of an unusual medium to express the sound of silence and the poetry of motion that long had held her art in thrall.

The convergence of these persons, places, and paradoxes is other than usual. What begins as a search for identity becomes, instead, an odyssey of unforgettable happenings. For it is a many-splendored book, a book of unusual charm that honors and understands the human spirit.

Israel Rehabilitation Annual. Dr. E. Chigier, editor. Israel Society for Rehabilitation of the Disabled, 10 IBN Gvirol St., Tel Aviv, Israel. 88 pages. $5.

This is part one of the proceedings of an international seminar on multidisciplinary approach to rehabilitation. It considers medical, psychological, and social aspects of services to handicapped people.

Rehabilitation Research In Israel. Dr. E. Chigier, editor. GOMEH, Scientific Publications, Bezalel Tcherikover, Publishers, Ltd., Tel Aviv, Israel. 208 pages.

From the book's Preface: "Research projects summarized in this publication are excellent examples of the productive collaboration between Israel and the U.S. under the Special Foreign Currency Program of SRS."

The volume divides the projects into groups pertaining to cultural aspects of rehabilitation, rehab techniques, rehab services, and special subjects. Among other things, an index lists films and publications produced by the projects.

Human Communication: A Unified View. Dr. Edward E. David, Jr., and Dr. Peter B. Denes, editors. McGraw-Hill Book Co., 1221 Avenue of the Americas, New York, N.Y. 10020. 458 pages. $25.

The total process of human communication is reviewed by 15 noted specialists who examine the physical, psychological, linguistic, and physiological aspects of communication. In its unified view approach, for example, it is meant to provide the communications engineer who is designing an automatic speech recognition system with the underlying principle of speech production and perception. In this way, the volume should be of use to a variety of professional persons working in the speech and hearing field.

Science and Blindness: Retrospective and Prospective. Milton D. Graham, editor. American Foundation for the Blind, Inc., 15 West 16th St., New York, N.Y. 10011. 212 pages. $3.75.

The contributors to this book run the gamut from biostatisticians concerned with the numbers of blind people and their principal characteristics to engineers concerned with lunar buggies and how they navigate. The book grew out of the Foundation's international symposium on science and blindness, held in New York City in October 1971. As such, it has an international flavor.

Aids for Handicapped Readers. Division for the Blind and Physically Handicapped, Library of Congress, Washington, D.C. 17 pages.

Described as a "reference circular," this publication comments on a variety of reading and writing aids that are available in local stores. Whenever available order numbers and prices are given. Some of the major breakdowns are: low vision aids, typewriters and accessories, Braille writing equipment, and sound reproducers.

Research Utilization

An Example from the North Country

Patricia Martin Woolf, René V. Dawis, Kenneth O. Doyle, Jr., and Darwin D. Hendel

Research without utilization is a rather empty undertaking. The Minnesota Division of Vocational Rehabilitation (DVR) and the University of Minnesota's work adjustment project joined forces a number of years ago to develop a research utilization program that is perhaps unique in all the country—the DVR Vocational Assessment Program.[1]

The purpose of this cooperative effort is twofold: to bring the latest knowledge and techniques of vocational assessment to the rehabilitation counselor and, from the counselor's application of those techniques, to extend that knowledge further still.

In 1957 the project began to study the general problem of adjustment to work, specifically the work adjustment of vocational rehabilitation clients. This research has had two objectives: the development of diagnostic tools for assessing the adjustment "potential" of applicants for vocational rehabilitation services and the evaluation of their actual adjustment. Out of these investigations has grown a system for conceptualizing work adjustment[2] and a series of instruments to predict and measure it.[3, 4, 5, 6]

In 1966 a small program began in which a few DVR counselors used these instruments, and certain others, with some of their clients. The word spread, and the popularity of the program grew so that in 1971–72 some 2,500 counselees from 54 local DVR offices took advantage of the service.

The process is simple and quick. The counselor refers his client to any of 25 testing sites scattered throughout the State. There a specially trained psychometrist administers the tests and mails the answer sheets to the project's university offices for scoring. Reports are mailed back to the referring counselor. The whole procedure take about 10 days.

The battery is extensive. The counselor can select any or all of these six instruments: The General Aptitude Test Battery[7] (GATB), the Minnesota Importance Questionnaire[8] (MIQ), the Strong Vocational Interest Blank[8] (SVIB), the Minnesota Vocational Interest Inventory[9] (MVII), the Minnesota Multiphasic Personality Inventory[10] (MMPI), and the Gates Reading Survey.[11] Two additional items are routinely administered: a background information questionnaire completed by the client and a client behavior and attitude checklist completed by the psychometrist.

The counselor's report is particularly interesting. The computer generates scores and interpretations for the GATB, MIQ, MMPI, and Gates; and National Computer systems, Inc., furnishes profiles for the SVIB and MVII. The GATB printout consists of the client's standard scores, his standard scores plus one standard error of measurement, a graphic depiction of those scores, and lists of occupational aptitude patterns of jobs for which he has "good," "lower," or "poor" probabilities of success. The MIQ report comprises a validity score, a profile of the client's vocational need scores on 20 work-relevant scales, and a prediction of the counselee's satisfaction with each of 148 frequently encountered occupations.

Thus, the report is directed at two critical questions: 1) What would the client *be able* to do and 2) what would the client *like* to do? Supplementary ability information comes from the speed, accuracy, vocabulary, and comprehension scores of the Gates, interest information from the SVIB and/or MVII, and personality information from the MMPI.

The special significance of the counselor's report is that it is framed in terms of the *occupational significance* of test scores. The GATV (sometimes supplemented by the Gates) suggests specific jobs and job groups for which the counselee appears to have the requisite abilities. The MIQ, with the SVIB and/or MVII, suggest specific jobs and job groups the counselee is likely to prefer. By integrating these kinds of ability and preference information with information about the local job market and local training resources, counselor and counselee can develop plans both realistically and scientifically.

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This emphasis on computer-based interpretation has the special advantage that it frees the counselor from the tedious, technical, and time-consuming task of seeking the occupational significance of test scores. It gives him additional time for the *counseling* that is so necessary if the client is to accept and use this information and integrate it into the whole vocational plan. There is no suggestion at all that the computer can be a substitute for the professional counselor—only a hard-working assistant!

The counselor's report is a major, but by no means the only, aspect of this research utilization program. Work adjustment project staff serve as consultants to DVR. This consultation involves workshops for counselors and psychometrists on the composition and capabilities of the battery and on the interpretation of test results, visits to local offices to study and resolve any problems that might arise in the operation of the program, to disseminate new techniques of test interpretation and utilization as well as counseling implications of work adjustment project research, and to discover additional ways in which this research can incorporate and be incorporated into the practice of vocational rehabilitation. The program thus becomes a potent liaison between practitioner and researcher.

This description of the program has focused on its benefit to the counselor. But the researcher also benefits. All data are stored, with strictest assurances of confidentiality, in program files. These data provide the bases for a variety of studies. Because of the large numbers of clients, the extensive test battery, and the duration of the program, very powerful longitudinal studies and studies requiring very large data bases can now be conducted with relative ease.

The Minnesota DVR vocational assessment program is a unique example of research utilization in vocational rehabilitation. But, still more important, this program illustrates the potential for improved client services that can rise from cooperation between service and research organizations, between State agency and university personnel.

Notes and References

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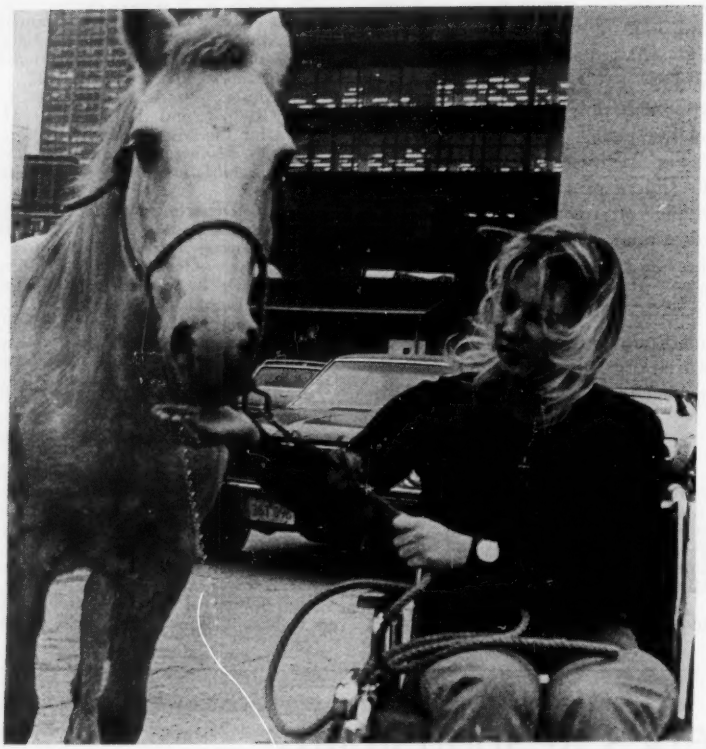
Society's Responsibility

Man becomes human because of the way he is brought up, the way he is culturized, socialized, and the way his early and later life experiences with other human beings lead him to feel about himself and others. His capacity for achievement and for a reasonably independent existence is intimately bound up with these experiences. Human personality may be stunted and distorted by mistreatment and deprivation; but it also is capable of developing in a healthy, full-functioning fashion if the individual is provided with the love, nurture, and desirably interpersonal experiences he needs for this development. In order for such development to be possible, the environment—the society in which the person lives—must not place on the person overwhelming demands and frustrations.

. . . society cannot escape responsibility for its members who present problems of maladjustment and malfunctioning. It is actually the duty of a society to provide, as a right to its members, some means of aiding those who may be temporarily or permanently unable to meet their own needs.

From an address by J. P. Kahn, M.D., published in *Public Aid in Illinois,* August 1971 and quoted in the *Annual Report, 1971,* Illinois Division of Vocational Rehabilitation.

Boots, Saddle, To Horse, And Away



Darlene, Institute client, meets Ginger, before demonstration ride for other patients

Horseback riding perhaps has fascinated people of all ages for all times. In it is a sense of movement and command that cannot be gained by walking or driving an automobile. That sense is heightened and combined with achievement when the rider is paraplegic.

While handicapped equestrians are novel in the U.S., schools for disabled riders have been in existence for some time in England and France. Mrs. Nancy Winter, nominated Rehabilitation Institute of Chicago volunteer of the year in 1972, worked in such a riding clinic in England. It was she who brought the idea to the Institute's director of therapeutic recreation, Art Rubin. The two of them, the patients, and the selected stable, make the program work.

To introduce the new program, arrangements were made with the Acorn Riding Center for Handicapped riders to bring Ginger, a gentle saddle horse, to the Institute grounds. An adjacent parking lot was temporarily transformed into a riding area. On this page is a photo of Darlene Tomaszewski, 20-year-old paraplegic, who "started a stampede" of patients in the satisfying art of horsemanship.

Now a regular program of the Rehabilitation Institute of Chicago, some 13 riders make the 45-minute car trek to the Naperville Acorn Hills Riding Center every Wednesday. Accompanying the group, a physical therapist evaluates changes and improvements in the patients. The therapist considers this as a therapeutic program since it increases independence and muscular coordination. On the psychological side, the program provides for individual accomplishment and an improvement of self-image. In addition, of course, the experience is "just plain fun!"

Physical arrangements at the stables include ramps and mounting facilities designed to meet the needs of the physically disabled. Even-tempered horses are trained to bear riders who, if needed, use special straps, saddles or reins, or who require an attendant at their sides. The stable has a whole variety of horses for the equestrian's use, from pony to full-sized horse.

The program is not hampered by cold weather, since indoor riding is available at Acorn Hills. But, in balmy weather, the horsemen and women can enjoy a leisurely out-of-doors stroll atop their mounts. For those brief moments, they can exchange the impersonal aspects of their wheelchairs as "a means of locomotion" for the kinship of a responding and living friend. Attesting to this, many of the disabled riders have formed attachments to their mounts and return on Wednesdays to ride their favorites. ■

Public Service And Education Combine In A Program To Aid Arthritics

Jean M. Kiernat, OTR

A public service program designed to teach arthritic homemakers how to avoid stress, protect their joints, and conserve energy was conducted by senior students of occupational therapy at the University of Wisconsin in Madison.

As a part of their course work, 12 students were assigned the practical experience of organizing and conducting a series of three classes on homemaking for persons with arthritis. Students worked with the Wisconsin Arthritis Foundation in announcing the classes in local newspapers and on a local television program. Residents of the Dane County area were encouraged to attend the free sessions which were scheduled to be held in the occupational therapy kitchen area of a Madison hospital.

Ten homemakers signed up for the series of three classes which were held in March 1972 and another 11 registered for the three April sessions. While more persons wished to attend, the enrollment was limited because of the small room size. Those who wished to receive information about homemaking but could not attend the classes were encouraged to request a home visit by one of the student therapists. Eventually eight home visits were made which afforded the students an excellent practical experience in the community and provided assistance to arthritic homemakers as well.

Class Sessions

The first of the 1½ hour classes was devoted to kitchen activities. Through the use of projected slides, demonstrations, and the try-out of new techniques and devices homemakers were taught how to avoid undesirable motions such as ulnar deviation of the wrist and prolonged finger flexion, how to eliminate unnecessary motions which were costly in terms of energy and time, and how to accomplish activities which were impossible because of limited strength or range of motion.

To avoid ulnar deviation of the wrist while opening and closing jars, homemakers were taught to open with the right hand and close with the left. Stirring and beating of ingredients was done in a counterclockwise direction to again avoid the ulnar deviation movement. Not only were the undesirable motions eliminated but by doing housework in this recommended manner a type of home exercise program was promoted simultaneously.

Washing dishes by keeping the fingers stretched out flat on a sponge encourages good finger extension exercise while the hand was submerged in warm water. Carrying baking pans and other heavy dishes by supporting them with the palms held underneath the pan replaced the more natural but undesirable method of carrying the pan by holding the sides with the tips of the fingers. Whenever possible homemakers were encouraged to use large joints to do a job.

Problems raised by lack of range of motion were solved through the use of long-handled tools. Long-handled reachers allowed homemakers to reach shelves previously un-

Mrs. Kiernat is Assistant Professor of Occupational Therapy, The University of Wisconsin, Madison. The program described here attained such good results that plans call for its replication each semester.

usable because of limited shoulder flexion. Hip and knee problems were aided also by utilizing long handled reachers to pick up items dropped on the floor or located on low shelves.

Simple changes in work habits such as cutting carrots *after* they were cooked saved the homemaker a good deal of energy. Sliding pans on counters rather then lifting and carrying, using a wheeled cart for table setting rather than carrying many loads, substituting minced dried onion and celery flakes for the fresh vegetable which must be chopped, choosing to make baked apples rather than peeling apples for a pie are all examples of work simplification presented to the group.

A second session was designed to show homemakers how to find the most appropriate work height while standing or sitting. To work while seated, homemakers were instructed to keep their hands lower than their elbows to avoid the added work of supporting the weight of the raised shoulders. When ironing, for example, the homemaker determined her appropriate work height by resting her palm on the iron board. A quick check revealed whether the hand was below elbow level as work was performed.

To avoid steps homemakers were encouraged to store items where they were first used rather than storing by tradition. Meat platers and vegetable dishes, for example, were first used at the stove and were stored there as opposed to the more usual practice of storing them with plates and other dishes. Foods to which water must be added were stored at the sink. Included were canned and dried soups, dried fruits, potatoes and other vegetables, and coffee and coffee pot when the percolator method is used.

A third session dealt with cleaning activities. Finger extension was again promoted during dusting activities by using a dusting mitt. Long-handled, feather-type dusters solved the problem of reaching high and low areas and eliminated the need to climb or crouch low. A long-handled sponge mop was used for floor mopping and a wooden dolly held the pail and allowed it to be pushed around the floor rather than continuously lifted. Long-handled dust pans and lightweight brooms aided in floor sweeping. A special kind of apron clip eliminated the need to tie a bow behind the back, an activity that is near impossible when there is finger involvement and lack of inward rotation of the shoulder.

Many other problems involving turning faucets on and off, bedmaking, vacuuming, and laundry were discussed and practiced. Leisure time activities were also included, for many arthritics believe that knitting and crocheting will provide good finger exercise. They were surprised to learn that very little finger motion occurs for their fingers are held in a prolonged grasp. Activities such as rolling pie dough with hands held directly on the rolling pin or rolling clay in ceramics work were noted as much better finger extension exercises. Reading can also prove to be a poor leisure time activity if the book is held for long periods of time.

Class Evaluations

Evaluations filled out by the homemakers revealed that those who attended the sessions had never heard of these ideas before and were eager to begin to use the suggestions presented. Once presented with a few of these suggestions and the reasons why joint protection and avoidance of stress and fatigue was important, the homemakers began to evaluate some of their own activities independently.

A social period which took place at the end of each class promoted the sharing of problems and solutions and aided in the development of new social relationships. A number of the class members began attending meetings of the Arthritis Foundation together to learn more about their disabilities and ways to help themselves.

Home Visits

The home visits revealed a multitude of problems in addition to homemaking. One woman could not sit on any of her living room furniture because it was too low, and she literally fell into the one rocking chair she did use. Students learned that this woman had not been able to use her toilet for many years and was using, instead, what she called a "portable homemade bedpan" which turned out to be a coffee can! She had never heard of a raised toilet seat which solved her problem in getting on and off the toilet.

Another homemaker worked outside the home lettering envelopes. Her continuous tight grasp of the pen and long periods of sitting were adding to her problem of stiffness and fatigue. Her pencil was built up with foam rubber to provide a more loose grasp and a second alternative was presented in the form of a tripod pen holder which allowed her to rest her extended fingers on the tripod while writing. A routine of alternate sitting and standing was worked out.

Other home visits consistently involved problems with use of the bathtub, presence of hazardous scatter rugs, and problems with stair climbing.

Duplicating the Program

This program, simple in concept, can be duplicated anywhere. An occupational therapist can reach a large group of disabled persons through this educational approach. Arthritis sufferers should be offered programs to prevent deformity as well as to remedy already developed problems.

Teaching groups of persons with chronic disabilities how to perform daily living activities is an efficient and effective use of the therapist's time and skills. The value of such

a program with a group of arthritic homemakers was demonstrated but the same method can be employed to aid hemiplegics, the wheelchair-bound, and elderly persons who have visual limitations or cardiac involvements. The setting in which the program occurs need not be hospital-based. Public school home economics departments, vocational schools, church activity areas, and even private homes could be used in locating a community-based health program such as this.

Organizations which might be tapped for aid in funding such programs or assisting in the publicity, transportation or other arrangements are the county health departments, hospitals, voluntary health organizations, such as the Arthritis Foundation, the Heart Association, Easter Seal Societies, and the State Division of Vocational Rehabilitation which considers homemaking to be gainful employment and, as such, has funded homemaker training programs.

Homemaker programs should not be limited to women since many men also are involved in taking care of the home. Neither should the program be limited to cooking and cleaning since home management will also include those activities likely to involve men, such as gardening, housepainting and many other home activities. These activities can be done to promote a good exercise program. Without instruction, however, they may be done in such a way as to enhance or promote disability. More on-the-job evaluations of arthritic workers should be done to determine whether the job is promoting disability and, if so, to find methods to minimize or eliminate the stress which is found.

Since the initial project in the spring of 1972, the program has been repeated several times. A series of four classes was repeated in the fall at the Madison Area Technical College for 16 arthritic participants. Another series of classes was conducted in Beaver Dam, a small community about 40 miles from Madison. The Beaver Dam program, which had 20 participants, was coordinated through the local hospital and the local seinor citizens center. Both the Madison and Beaver Dam programs are being repeated in the spring 1973 semester.

Questionnaires filled out by the arthritic participants indicated that they felt the classes were very worthwhile, and they were using information gained from the class sessions. Some of the comments received were:

". . . came to grips with myself; accept dependency—acquired more sensible attitude of doing what I can rather than what I would like."

"I think all who attended these classes enjoyed them and gained much information. I believe it is good for all arthritis sufferers to get together from time to time, somehow one never realizes how many types of arthritis problems there are."

". . . The homemaker classes were very helpful and worthwhile and I hope there will be more of them." ■

Primary Prevention of Disease

Leonard M. Schuman, M.D.

Man instinctively mends cracked foundations, repairs broken fences, plugs holes in leaky roofs, binds cracked and drooping tree limbs, and, in turn, palliates pain, dialyzes blood for malfunctioning kidneys, and replaces heart valves or even hearts ravaged by disease. Equally instinctively man flinches from a threatened blow, runs from a burning building, turns from a dangerous precipice, and shies from persons with the defacing lesions of an infectious disease. Each act is one of preservation. Each is directed toward avoidance of an uncomfortable and even disastrous outcome. Each is prevention, yet with distinct and grossly understressed differences in goals and efficiency of attainment.

In the health field, the excision of a tumorous lung is an attempt to cure or arrest the disease or postpone death, and physical therapy and physical rehabilitative procedures for the stroke victim are attempts to minimize disability. The erection of barriers between radiative sources and man is designed to obviate the occurrence of radiation sickness and leukemia, and administration of a specific vaccine will obviate the occurrence of poliomyelitis. Although each approach shares the common characteristics of man's striving for a measure of immortality, there are obvious, distinct differences in the philosophy of its attainment. In secondary prevention, remedial actions cannot compensate for the mental anguish, physical pain, pretreatment disability, and the loss of productivity and contribution to the community thereby engendered. With primary prevention—the avoidance of disease itself—and the maintenance of health, however, none of these deleterious and impoverishing situations are encountered.

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How Many Deaf People?

Jerome D. Schein, Ph. D., and Marcus Delk

How many deaf people are there? The reason that question is so often asked is that the answer is important: Planning educational and rehabilitation facilities depends on the numbers who will need those services. Appropriations for schools are based on how many students are anticipated. Similarly, expected client load determines allocations of rehabilitation resources. Decisions about public policies, such as whether to caption television programs, are influenced by the number of people affected. Insurance companies need a base for calculating accident and death rates. Almost every program involving the deaf population sooner or later provokes an inquiry as to its size.

Yet, despite their importance, nationwide enumerations of the deaf population of the U.S. ceased in 1930.[1] That was the last time the U.S. Bureau of the Census counted deaf people. Surprisingly, the Bureau gave as its reason for stopping its studies the fact that it could not do the job accurately.[2] In reviewing its estimates of the size of the deaf population, the Bureau concluded that the variations in rates every 10 years, from 1830 to 1930 were so great they probably were due to erroneous methods. Table 1 illustrates why the Bureau doubted its own findings: The prevalence rates vary from 32.1 to 67.5 per 100,000—a wide range.

TABLE 1.—Deafness per 100,000 population: United States, 1830 to 1930

Year	Rate
1930	46.5
1920	42.5
1910	48.6
1900	32.1
1890	64.8
1880	67.5
1870	42.0
1860	40.8
1850	42.3
1840	45.0
1830	47.5

Source: United States Bureau of the Census.

Forty years would be a long time to use these population rates, if they were initially accurate. However, decisions about services for deaf people in the last 40 years have been based on admittedly dubious statistics. That is why the National Association of the Deaf undertook its own study of the size and characteristics of the deaf population. The direction came from New York University's Deafness Research & Training Center. Almost every national organization concerned with deafness gave support to the project. A list of these sponsors is shown in Table 2. Similarly, at local levels cooperation by groups and individuals was outstanding.

You may wonder why we thought we could do a job the giant Bureau of the Census had given up. We were encouraged by two recent accomplishments. First, research on objectively assessing hearing ability was completed by 1968; second, a statistical model had been developed which made the task economically feasible, though by no means cheap.[3]

The first point was reached after nearly 7 years of research on how to decide if someone is deaf.[4, 5] How do you discover if someone is deaf? Ask them! But what to ask and how to ask about hearing impairment proved to be complex questions. The solution we chose is the hearing scale shown in Figure 1. The hearing scale consists of eight questions to which a person answers yes or no. The interesting feature is that the questions are arranged so that once you answer no you will very likely

FIGURE 1.—Scale of Hearing Ability (Revised 1968)

Please answer the following questions the way you usually hear with both ears. If you use a hearing aid, please answer the way you hear without a hearing aid.

1. Can you hear loud noises?
2. Can you usually tell one kind of noise from another?
3. Can you usually tell the sound of speech from other sounds and noises?
4. Can you usually hear and understand a person if he speaks loudly into your better ear?
5. Can you usually hear and understand what a person says without seeing his face if he shouts to you from across a quiet room?
6. Can you usually hear and understand what a person says without seeing his face if he talks in a normal voice to you from across a quiet room?
7. Can you usually hear and understand what a person says without seeing his face if he whispers to you from across a quiet room?

Dr. Schein is Director, Deafness Research & Training Center, New York University; Mr. Delk is Senior Research Associate, National Census of the Deaf Population. *The census of the deaf reported on in this article is supported, in part, by SRS.*

TABLE 2.—Sponsoring organizations

- American Academy of Ophthalmology and Otolaryngology
- American Athletic Association of the Deaf
- American Council of Otolaryngology
- American Speech and Hearing Association
- Board for Missions to the Deaf, Lutheran Church Missouri Synod
- Conference of Church Workers Among the Deaf
- Conference of Executives of American Schools for the Deaf
- Council of Organizations Serving the Deaf
- Convention of American Instructor of the Deaf
- Deafness Research Foundation
- Gallaudet College Alumni Association
- International Catholic Deaf Association
- National Association of Hearing & Speech Agencies
- National Congress of Jewish Deaf
- National Fraternal Society of the Deaf
- National Institute of Neurological Diseases and Stroke
- National Rehabilitation Association
- Professional Rehabilitation Workers with the Adult Deaf
- Registry of Interpreters for the Deaf

answer no to all the remaining questions. That is why they are said to form a scale. After extensive testing, the scale proved sufficiently reliable and valid for survey purposes. That meant that the definition of deafness could be made objectively—by reference to the hearing scale.

Usually we have another consideration when we use the term "deaf." We also include the person's age when he lost his hearing—the age at onset. For the National Census of the Deaf Population (NCDP), we accept into the survey all persons whose deafness occurred before 19 years of age. For those interested in deafness of earlier onset, the printed reports will provide results for younger ages. The target population, then, consists of all persons who, prior to completing their secondary education, lost (if they ever had) the ability to hear and understand speech.

Having defined the population, the first step was to build a list of deaf persons. Beginning in 1969, names and addresses of deaf persons were gathered from all over the U.S. By 1970 we had over 440,000 entries. The computer read through them and eliminated 148,000 names that appeared to be duplicates. That left nearly 300,000 names (see Table 3).

The next step was to verify the list. We had four purposes: (1) to remove remaining duplicates, (2) to make certain that those on the list met the criteria for deafness, (3) to determine if the persons were alive, and (4) to affirm the correctness of their addresses. To accomplish these objectives, a questionnaire was mailed to every person on the list. It contained the hearing scale, demographic information, a question about age at onset, and other pertinent questions about deafness.

The mail survey was successful. Of 291,248 questionnaires, 214,775 were returned (see Table 3). That is a response rate better than 7 out of 10. Curiously, many people believe that deaf persons will not respond well to a mail survey. Our experience with a number of studies is that deaf persons respond at rates as high or higher than other groups. This result seems logical, since deaf people are more dependent on the mail than most people who can hear. Of course, mail surveys must be planned with the language problems associated with deafness in mind.

Had we not had our budget upset by the unanticipated jump in postal rates, which occurred after our study was underway, we probably would have done even better than a 73 percent response rate. An earlier national pretest yielded an 86 percent return.[6] However, we were forced to curtail our followup mailings because of higher costs. Nevertheless, the verified list contains nearly 100,000 deaf people—*possibly the largest confirmed list of people with the same disability ever gathered.*

TABLE 3.—Summary of list building and mail verification: National Census of the deaf population, 1971.

Names, Addresses Rcvd	440,211
Dups. Eliminated	148,963
Q'naires Mailed	291,248
Total Return	214,775
Q'naires Returned	168,844
Q'naires Undeliverable	45,931
Q'naires Not Returned	76,473

The next logical question is: How complete is the national list? Does it represent ½, ¼, or 1/10 of the deaf population? To answer that crucial question, the National Center for Health Statistics agreed to include in the 1971 National Health Survey the same hearing scale and questions about onset of loss which were used in the NCDP, so that the results would be directly comparable. The National Health Survey annually conducts interviews in 42,000 households carefully selected to represent the U.S. Its results for 1971 provide an independent estimate of the deaf population. By combining the results of the two studies, a more precise estimate of deafness is obtained than could be from either study alone.

At this writing, final analysis of the survey results are being made. However, a preliminary estimate of the deaf population as defined above shows 400,000 people or a rate of about 200 per 100,000. If you look back at the 1930 estimate of 46.5 per 100,000, you have a measure of the extent to which the deaf population may have been underestimated during the last 40 years. Even the rule of thumb often cited in recent years of 1 deaf person per 1,000 appears to be much too low.

Bear in mind that the rate for significant, bilateral hearing impairment in the U.S. is over 6 percent; i.e., about 13.2 million persons have a bilateral loss of hearing which significantly interferes with their ability to hear and understand speech.[7, 8] Most of these persons are only mildly disabled by their hearing loss, and most have become hard of hearing and deaf in their

later years. We estimate that the number of persons who cannot hear and understand speech, regardless of age at onset, is between 2 and 3 million. These figures provide a context in which the 400,000 early deaf segment does not seem unreasonably large.

When the final determination of the number of deaf people is made, the NCDP will still not be complete. The concluding step consisted of interviews with deaf persons on a wide variety of topics. They were completed in August 1972 (except for a supplementary study now being done in New York City). Of course, funds were not sufficient for 100,000 personal interviews. Nor would that number be necessary to obtain representative data. A stratified sample of nearly 2,000 deaf people was drawn from the verified list to represent the deaf population.

What information has been obtained? The interviews gathered facts about the deaf person's household: The kind of dwelling unit, size and composition of his family, the family member's hearing ability, education, occupation and income. For the deaf individual, questions probed in depth his education and training, occupation and work experience, communication, health, insurance problems, and experiences with vocational rehabilitation programs. Also, inquiries were made into geographical and intergenerational mobility. The results should yield the most detailed description of the deaf population ever brought together in a single study.

What will all these numbers mean to deaf people? Will the NCDP contribute to their well-being? We think the answer to the last question must be yes, but not an unqualified yes. The more we know about the size, location, and characteristics of the deaf population, the better we can plan to provide the services and facilities that are needed and desired. But the information alone will not do the job. The deaf community must prepare to make use of the information to encourage greater efforts on behalf of those deaf persons who need help and to support requests for those things the community wants. The NCDP is an instrument, a tool for the building and refurbishing of social structures. We hope in the years to come that the deaf community will find the tool useful.

More than a count *of* deaf people, the NCDP has been *about* deaf people. In time, it should prove to be *for* deaf people.

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The above acknowledgments do not discharge the obligations due to many other dedicated, selfless persons who have aided the NCDP. Any errors in this report, however, are the sole responsibility of its authors.

Notes and References

(1) Since its establishment in 1956, the National Health Survey has included questions about hearing impairment in its annual household interviews. It has also conducted a program of audiometric assessment of a national sample as part of its health examination surveys. These valuable studies, however, do not provide extensive information about deaf people nor do the sample sizes generally provide high precision in estimates of the size of relatively rare conditions like deafness. For these reasons, special studies, such as the decennial censuses and the NCDP, are needed.

(2) U.S. Bureau of the Census, *The Blind and deaf-mute in the United States: 1930,* Washington, D.C.: U.S. Government Printing Office, 1931, p. 23.

(3) Schein, J. D. *The deaf community: studies in the social psychology of deafness.* Washington, D.C.: Gallaudet Press, 1968, p. 101.

(4) Schein, J. D., Gentile, A., and Haase, K. "Methodological aspects of a hearing ability interview survey." *Vital and Health Statistics,* Series 2, No. 12, 1965, p. 19.

(5) Schein, J. D., Gentile, A., and Haase, K. "Development and evaluation of an expanded hearing loss scale questionnaire." *Vital and Health Statistics,* Series 12, No. 37, 1970, p. 42.

(6) Schein, J. D. *Progress report No. 2. National Census of the Deaf,* Project No. 14–P–55107/3–03. Washington, D.C.: National Association of the Deaf, January 1971, p. 16 (mimeo).

(7) Gentile, A., Schein, J. D., and Haase, K. "Characteristics of persons with impaired hearing, United States—July 1962–June 1963." *Vital and Health Statistics,* Series 10, No. 35, 1967, p. 64.

(8) The estimate of 13.2 million is from the 1971 National Health Survey; the reference is to the published report of the 1962–63 National Health Survey.

Rehabilitation: One Answer

Philip Schafer

The following is excerpted from Mr. Schafer's keynote address, "A Time For Change," which was delivered at the 9th Community Resources Institute, Tucson, Arizona.

. . . I think we are in the most serious domestic crisis of my life. I went through the Depression, walked the streets of Chicago, sang for my supper, and never was the time like it is today. That was a breeze, now that I look back, because we were all together. We were all in the same boat. The haves and the have-nots were not pitted against each other. Our society has become polarized to the point that it is surburbia versus the ghetto, and I tell you that the ghetto exists in Las Vegas; it exists in Seattle; it exists in Great Falls; it exists everywhere there is ignorance, poor health, poor housing, destitution and disability. The real ghettos are in the minds of the people who live in destitution and poverty.

A wall of apathy has been built around those ghettos—a wall of disability of body and spirit which breeds dependency. Disabilities of body and spirit are tryants and enslave men in dignity. These walls of Jericho, which wall *in* instead of walling *out* the problems, have denied the disadvantaged the good life of America; and as Eric Hoffer said in *The True Believer*, when groups see the possibilities of a better life, that is the time they make their move.

Many of you . . . know the cost of holding people back from their rightful place in society. You know the cost of our failure to face these problems, and this is the most frightening thing that is happening today. Our country must find peaceful alternatives that will result in a cohesive America. We . . . can find the way if we have the will, and if we cannot—who can?

Those of us in rehabilitation believe that rehabilitation has some of the answers. When we speak of rehabilitation, we should view it as applying to the needs of all people with problems, whether these problems are physical, cultural, educational, or economic.

Much has been learned by practicing rehabilitation. For instance, in vocational rehabilitation, it is possible to move the halt, the lame, and the blind to useful roles in society. There has been dramatic progress in the restoration of disabled people. . . .

From rehabilitation's successes and failures something has been learned that can be communicated and injected into the very fibers of all the agencies that are dealing with people. Rehabilitation is not magic. It is not a technique. It is not a place, not a hospital, not a rehabilitation center, not a sheltered workshop. It is not a doctor, not a social worker, not a counselor, psychologist, physical threapist or occupational therapist. It is all of them and much more. It is a concept, it is an idea about how to make a person whole.

A Case In Point

The following thumb-nail sketch was sent to us by Mrs. Jane Yau, Massachusetts Rehabilitation Commission.

The *Rehabilitation Record* will print, from time to time, innovative, different, or unusual placements that underline the possible in cases that seem impossible.

When I saw Mrs. X at the medical-surgical ward, she looked pitifully thin, and pale. She had been rushed back to the hospital after slashing her neck in a suicidal attempt during a weekend visit at home. The act was a repetition of a suicidal attempt which a year before had brought her to the State hospital.

She had been an administrative assistant in an Ivy League college, but she had never liked her job. Now, in her mid-forties, she felt she had nothing to live for. Her two children had grown up and had families of their own. Her husband traveled a lot. He espoused the "traveling salesman's ways."

Since Mrs. X seemed to have a knack with people, I suggested that she could try out as a volunteer nursing assistant on the medical-surgical ward. Once she had the training and experience, she could get a job as a nursing assistant. Mrs. X agreed. I made arrangements for her to work on the ward where she had been a patient only a few weeks before.

The nurses were understanding and the patients were appreciative of the new volunteer. State hospitals are always short of help. Mrs. X gradually was given more of the responsibility. She had found a new reason for living. After 3 months she was ready for the competitive labor market. She was ready to leave her husband and make a life of her own.

Mrs. X applied for a job at a county hospital with my recommendation. She was chosen over many applicants. Mrs. X smiles a lot now. She looks 10 years younger. For her a new job has given a new life.

COMMENTARY. . .

. . . On Consumers

. . . I'm very happy to report, from our own "at home" standpoint, that the story ("Rocking and Rowing: Minnesota's Consumer Advisory Project" March-April 1973) has been very well received by all segments of the "rehab industry" in Minnesota.

It also is serving a very valuable purpose for us in DVR, in connection with our follow-on regional consumer advisory meetings. It is being used as a "start-off" test, so to speak, for those meetings—something the consumers can seize on as a take-off point for the further exploration of issues the regional meetings are meant to accomplish. Also, I am certain, the fact that the consumers can see that a national magazine has focused on their feelings and views is a real morale booster for them.

Jim Drake
Minnesota Division of
Vocational Rehabilitation

. . . On Romi

Thank you for sending me the extra copies of your impressive magazine of action for the ones hurt by life's chances. As careful as Linda Knight and I were to protect the professionals involved in Merry's ROMI challenge; there were 2 mistakes you may choose to print corrections for in your next issue which may rekindle interest. Merry's story is made more potent by the fact that at 13 months and not 3 years she first ingested the cardboard that led to the ROMI; at 40½ months or 3 years she said her first clear sentence. Early stimulation while the child is learning to eat and speak is the answer. At 13 months she didn't have molars for the wire to hook on the ROMI to the teeth; at 3 years she had teeth. The article appears false as printed; although we did approve it, I don't want your printing of material to be misrepresented. Also the *attention* of: Merry's family, dentist, speech therapist and the Sisters at Crown Point were a large part of Merry's progress; the ROMI alone was not the pivot point but the attention with the ROMI gave me as Merry's mother more confidence to stand tall and face the world with Merry's hand in mine.

Sister Lucille Mary has accepted 3 other handicapped children in her preschool Crown Point program. At this one young point in life, 50 children are learning the early stimulation of reaching out to another's heart regardless of skin color or any physical limitations. I am so thankful my sons, husband, and I have the opportunity to witness love for another's potential so purely fresh before the children grow up and become categorized. At Crown Point rehabilitation of love in its purest sense is a daily routine. It was God in us and not the ROMI which enabled us all to bravely reach out to Merry; a little partially paralyzed creation. As Sister Sheila says of St. Colettas:

"We believe these children to be small citizens in this world but great saints in the next.

To this belief we dedicate ourselves to helping the handicapped find the strength to face the world."

Joyce Wall Lewis
Akron, Ohio

. . . On Courage

The following poem is one that I wrote when I was 14 years of age and quite depressed over the fact that I had been crippled by poliomyelitis at the age of 8. I hope that it helps someone to realize that things aren't as bad as we sometimes feel they are.

I WONDER WHY

How many tears I've shed, how many times I've wished I were dead.

Have courage, have courage, I tell myself every day for into depression you can easily sway.

I wondered and wondered why it had to be ME and why it should be.

I was walking and running one day, playing as happly as a child can play. I was struck with an illness and a fever real high, couldn't walk nor run anymore and I wondered WHY?

Wonder no more I tell myself now, wonder no more on why or how, grow up and take it in stride and you will be a person with pride. For but of course—THINGS COULD BE WORSE.

Rachel Rodriguez

. . . A Correction

I was pleased that you saw fit to publish my remarks in your *Rehabilitation Record* (March–April 1973, "Dualism In Medicine"), until I came to the sixth line from the bottom in column 1. . . . Referring to the original I found. . . . a whole line had been deleted. . . . the unfortunate and fortuitous retention of the "and" made syntactical sense but *conceptual nonsense.*

Edward E. Gordon, M.D.

The correct sentence should have read: "The mechanical world picture was transferred to the human organism in terms of structure and physical function, leaving little room for the equally valid reality of man's subjective life expressed in emotional, social, and cultural relations."

Editor

REHABILITATION RECORD

The weakest ink is better than the strongest memory

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